



# Contagion of Health Effects of Unemployment within Families: Does Becoming Unemployed among Young People Affect Health of Their Partners?

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- i. to advance the knowledge base that underpins the formulation and implementation of relevant policies in Europe with the aim of enhancing the employment of young people and improving the social situation of young people who face labour market insecurities, and
- ii. to engage with relevant communities, stakeholders and practitioners in the research with a view to supporting relevant policies in Europe. Contributions to a dialogue about these results can be made through the project website <http://www.except-project.eu/>, or by following us on twitter @except\_eu.

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# Contagion of Health Effects of Unemployment within Families: Does Becoming Unemployed among Young People Affect Health of Their Partners?

## Background

Growing volatility of labor markets in Europe and United States has raised concerns about the consequences of unemployment for population health. Losing a job carries social stigma, undermines personal status and identity, lowers self-esteem and brings stress and anxiety, which leads to poorer mental and physical health (Jahoda 1981; Pearlin et al. 1981). Young people are particularly vulnerable to the changes in labor market conditions (Bell & Blanchflower 2011; O'Higgins 2010; Müller & Gangl 2003). At the same time, as compared to people in prime age, youth have less financial and social resources that could be mobilized in order to deal with stress resulting from unemployment. Hence, the impact of unemployment on health in this group is of particular concern.

While a number of studies have examined the associations between unemployment and health (see McKee-Ryan et al. 2005; Paul & Moser 2009; Voßemer & Eunicke 2015 and Wanberg 2012 for extensive reviews), these associations have been so far investigated from an individual perspective. However, losing a job may affect not only those who become unemployed, but also individuals in their closest social environment (Brand 2015; Ström 2003). The idea that when one household member becomes unemployed, the consequences of this adverse life course event resonate within the whole family, has been offered already in the classical study carried out in US following the Great Depression by Komarovsky (1940/2004). That seminal study took perspective of a traditional patriarchal family and focused on the authority relations of a man in his role of a husband and father. However, changing gender relationships in the public and the private spheres of life have irreversibly altered the power relations within modern families (Goldschneider et al. 2015), which is manifested among others in the substantial increase of the dual earner households. Therefore, the consequences of unemployment should be investigated from a perspective of both men and women, and not just from the point of view of the male representative of a couple.

The aim of this paper is to examine the impact of transition to unemployment on self-rated health among young people's partners. Partnership, understood as a union of two adult persons living in the same household, plays a crucial role in shaping psychological and health-related functioning (Carr & Springer 2010; Gove et al. 1983;



Rook et al. 1991) and hence constitutes the most relevant context to investigate processes of interference of distress and ill health related to adverse life course events. On the one hand, partnership may buffer the effects of transition to unemployment because of support that can be received from a partner. On the other hand, partnership means combining two otherwise separate life plans, responsibilities and experiences, and through emotional closeness and economic interdependence increases exposure to risk factors for ill health. The focus of this paper is on young people because previous research indicates this group as most vulnerable with respect to the magnitude of the unemployment effects within families (Ström 2003). This social category is at highest risk of unemployment, remains least established on the labour market, in many welfare state contexts it lacks access to welfare state benefits and at the same time does not have savings that could cushion the reduction in household income (Blossfeld et al. 2005, 2011). In addition, we look at the differences in these effects across European societies. We relate the magnitude of impact of male and female partners' unemployment to social norms determining the degree to which doing paid work is valued, as well as whose work – men's or women's – is valued relatively more. Specifically, we consider the role of the so-called work obligation (also known as work ethic) as a factor that may alter the impact of partners' unemployment on individual health. We also test whether male partners' unemployment matters more in societies where social norms support the primacy of a breadwinner role and whether female partners' unemployment is more harmful in egalitarian societies.

The contribution of this study to the existing literature is following. First, we advance theoretical discussion on the mechanisms of within-family diffusion of health effects of unemployment. We draw together the literature from psychology of work, organizational studies and sociology to provide better understanding of how distress spread between professional and private life of an individual and the channels through which it may also affect health of other family members. We also add to the rather scarce empirical evidence on the effects of partners' unemployment on health. To this end, we use longitudinal data from the European Union Statistics on Income and Living Conditions (EU-SILC), which are representative for the whole Europe and we employ panel data methods. Unlike many surveys, EU-SILC targets households and not representatives of households, meaning that information about both partners within a family is available and can be used for inference on contagion of health effects of unemployment. The longitudinal dimension of the data provides the opportunity to control for preexisting differences in health conditions. In addition, we use methods that reduce the possible bias resulting from the unobserved heterogeneity among youth. Finally, as EU-SILC includes data from 30 countries, we exploit the variation in socioeconomic contexts in order to examine the heterogeneity of effects of partners' unemployment across societies.



## The effects of unemployment on health

### Individual versus family-centered perspective

The literature on the role of employment for individual health indicates that having a job may serve several important functions (Jahoda 1981, 1982; Warr 1987; Strandh 2000). Paid work provides individuals with income, which in itself is essential for both mental and physical health, as it is necessary for satisfying physical needs and it gives the feeling of having control over ones' life as well as an ability to plan ahead. In addition, employment satisfies a number of psychological needs, because it provides with time structure, social contacts, externally generated goals and collective purpose, the opportunity to use skills and develop competences, social status and identity. Being deprived from these benefits can be especially harmful for youth, because in the early life course stage, attaining economic stability and self-sufficiency are important markers of the transition to adulthood (Baranowska-Rataj et al. 2016; Danziger & Ratner 2010). Indeed, a large body of empirical research confirms that unemployment has negative effects on health, both in a general population (Burgard et al. 2007; McKee-Ryan et al. 2005; Roelfs et al. 2011; Strully 2009) and among youth (see Voßemer & Eunicke (2015) for review).

Previous research on the health effects of unemployment examined those effects from individual perspective. However, most recent contributions to this literature stress that human health trajectories do not develop in isolation from each other and combining information on multiple actors within individuals' social environment is necessary to gain a full picture of the impact of labor market careers on health (Brand 2015). Especially a family constitutes a micro-ecosystem where mutual support but also tensions related to financial and psychological resources are of paramount importance (Carr & Springer 2010). Indeed, classic studies on the negative consequences of unemployment experienced during the Great Depression took the perspective of a family where economic hardship affected the dynamics and functioning of all the household members (Dew et al. 1991). The economic need for employment, central for understanding the effects of unemployment on individual health, should be equally valid for the family. As resources tend to be shared within households, the financial consequences of unemployment may be harmful for all the family members, not only for the individual who actually became unemployed. Economic deprivation and strain have been found to be associated with poorer family relations (Voydanoff 1990, Conger et al. 1999; Eliason 2012), but the effects of unemployment on marital instability cannot be explained solely by related reductions in income (Charles & Stephens 2004), which suggests the existence of non-monetary channels of impact of unemployment on family members' health and wellbeing (Mendolia 2014).

While the mechanisms of diffusion of health effects of unemployment related to reduced household income are straightforward, the reasons for contagion of consequences of deprivation of psychological needs among the unemployed may



seem less clear-cut. Previous research has often pictured family members, and especially partners, as a buffer that absorbs the emotions resulting from negative life course events, but little attention has been devoted to identification of processes that channel this influence in relation to job loss and unemployment (Howe et al. 2004). There is a large body of evidence on the so-called spillover effects, i.e. within-person transmission of feelings and emotions across different life domains, which may correspond to either positive emotions or to negative ones, such as stress and strain. In spite of physical and temporal boundaries between professional and family life, feelings and emotions in one sphere may carry over to the other (Staines 1980; Clark 2003; Westman 2001). After distress spills over from work-related domain to the home-related domain, it may cross over to the closely related persons, especially partners (Westman 2001; Bakker et al. 2009). The crossover effects may operate through empathy, i.e. sharing of partner's emotional state (Bakker & Demerouti 2009). Transmission of distress between partners may also operate in a different way: unemployment of one of the partners may lead to emotional reactions and behaviors that place a burden on other family members and in turn, becomes a stressor for them, leading to deterioration of their health (Rook et al. 1991; Markus 2013). Both monetary and non-monetary factors that may mediate the impact of unemployment on a partner's wellbeing lead to a prediction that a partner of a jobless individual may experience more health problems as compared to a partner of an employed individual. However, the magnitude of this effect (or at least the magnitude of the psychological component) may vary across societal contexts for reasons outlined below.

### **Social norms regarding paid work**

Societies differ substantially in the degree to which paid work is valued and not working is stigmatized, and there is also substantial heterogeneity in terms of social norms related to the division of paid work within couples. In some countries, it is believed that paid work is a moral duty of each individual (Stam et al. 2014, 2016). The so-called work obligation (or work ethic) refers to the moral embeddedness of work. This concept is substantively different from work-related individual motives or preferences about work (Niles 1999; Furnham 1982). Previous research has shown that the detrimental impact of unemployment on health and well-being tends to be larger in contexts with stronger work obligation, because it implies stronger social stigma attached to being without a job (Brand et al. 2008; Charles & Stephens 2004; Clark 2010; Stam et al. 2014, 2016). Following the same logic, one could argue that partner's unemployment may be more harmful in such contexts.

Women's and men's work is not equally valued (and not doing paid work is not universally stigmatized) in all societies. As Paul and Moser (2009) frame it: "masculine identity is intricately linked to having a job in Western societies and is severely threatened by unemployment", and indeed, a number of empirical studies shows that men are substantially more distressed by unemployment than women (Paul & Moser



2009), although there is no consensus that these results are universal across all societal context (McKee-Ryan et al. 2005). Strandh et al. (2013) show that the divergent findings regarding individual effects of unemployment may fit a contextual pattern where gendered effects of unemployment on health can be expected to be stronger in societies with more traditional gender role attitudes. At the same time, similar health effects of unemployment may be expected for men and women in egalitarian societies. This argument can be transposed to explain the differences in the gendered impact of partners' unemployment across societies. Less detrimental effects of male partners' unemployment and relatively stronger effects of female partners' unemployment may be expected in countries where no primacy is ascribed to male breadwinner role.

### **Empirical studies on the effects of partners' unemployment**

The effects of partners' unemployment received little attention in previous research. In her overview article, Ström (2003) identified 22 studies of the effect of unemployment on various dimensions of spousal well-being some of them included health outcomes. Of these, only 5 studies employed longitudinal data, but even those involved very small samples (of between 80 and 361 families) and presented descriptive analyses, which did not reduce bias related to selectivity unemployed individuals with respect to pre-existing health differences. To the best of our knowledge, three recent studies, by Siegel et al. (2003), Markus (2013) and Mandolia (2014), overcame these shortcomings. Siegel et al. (2003) found no evidence that husbands' job loss has a statistically significant effect on wives' mental health in a study focused on people aged 50-60 in US. Markus (2013) observed larger negative effects on mental health when the male partner experienced a job loss as compared to the effects of female partners in Germany. In a study using data for UK, Mendolia (2014) have shown that couples in which the husband experiences a job loss are more likely to experience poor mental health.

While these three studies have a number of advantages, they also have some limitations. As Siegel et al. (2003) focused on the older age group their findings might not generalize to younger populations, especially given that job loss for many older workers may be a trigger for early retirement. The data on plant closures used in (Markus 2013) provide analytical framework akin to natural experiment, but internal validity achieved via such research design comes at the cost of external validity. Plant closures are often restricted to specific populations, typically blue-collar workers, which substantially limits generalizability to the workforce as a whole (Brand 2015). Also the context of Germany is specific in so far as this country remains conservative both in terms of policies as well as social attitudes related to gender roles (Matysiak & Węziak-Białowska 2016). Mandolia (2014) limits her analysis to husband's unemployment, and both Siegel et al. (2003) and Mandolia (2014) restrict their analysis to the Anglo-Saxon countries. Summing up, the empirical literature on the partners' unemployment



is scarce, the available studies show mixed results and their conclusions cannot be generalized for both genders and for all kinds of societal contexts.

### Research design

We use longitudinal methods that give the opportunity to disentangle the effects of transition to unemployment on health from the impact of pre-existing individual health conditions. In the first step, for descriptive purposes, we use random effects models controlling for baseline health. In the second step, we estimate correlated random effects models in order to reduce the possible bias resulting from the unobserved heterogeneity among workers. Correlated random effect models, also known as hybrid models, combine the high internal validity of fixed effects models and high efficiency of random effects models, leading to unbiased and equally precise estimates of the effects of interest (Bell and Jones 2015).

We employ panel data from the European Union Statistics on Income and Living Conditions Survey (EU-SILC), which cover 30 European countries over the period 2003-2013. EU-SILC is a household survey, it provides information on both labor market status and health of all adult family members that live under the same roof, which is crucial from the point of view of our research questions on contagion of the health effects of unemployment within families. Due to its longitudinal character it is possible to control for baseline health conditions and other, unobserved factors, which may affect both labour market career dynamics and health. Our sample includes people aged 18-30 and their partners (in case if they have any)<sup>1</sup>.

Our key dependent variable is constructed based on respondents' self-assessment of overall health at the time of the survey. Respondents rated their health using a five-category scale with values ranging from very good (1) to very bad (5). Although self-assessed health may be subject to culture-related bias (Jürges 2007), this measure has been shown to be a reliable indicator of health, as it correlates with subsequent deterioration of functional capabilities and with mortality across different social categories and contexts (Burström & Fredlund 2001; Chandola & Jenkinson 2000; Jylhä 2009).

Our key explanatory variable is the labor market status of individuals and their partners, and since we did not want to exclude person-observations of individuals who were unpartnered at some time points, we also control for partnership status. The variable operationalizing labor market status distinguishes between employment, unemployment and inactivity. The control variables included in baseline models include age and education attainment (with following categories: elementary education, lower secondary education, upper secondary education, postsecondary education and

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<sup>1</sup> Our sample includes all types of partnerships: among married people and partners in consensual union (with or without a legal basis). While our sample is restricted to young people, we did not condition on partner's age, i.e. information on partner's labour market status is included even if a partner is older than 30.



tertiary education). In order to control for pre-existing ill health and reduce the problem of pre-selection of individuals having health problems into the group making transition to unemployment, we control for long-standing illness lagged by one year<sup>2</sup>. Since both the risk of transition to unemployment and health outcomes tend to vary across welfare state regimes, we include fixed effects for the following groups of countries: (1) Nordic countries, i.e. Denmark, Finland, Iceland, Norway and Sweden (2) Western European countries, i.e. Austria, Belgium, France, Luxembourg and Netherlands<sup>3</sup>, (3) Anglo-Saxon countries, i.e. UK and Ireland, (4) Southern Europe: Greece, Portugal, Spain, and Italy, (5) postsocialist countries: Czechia, Hungary, Poland, Slovakia, Slovenia, Romania, Bulgaria, Estonia, Latvia and Lithuania, we also distinguish a group of South-Eastern European countries: Croatia, Cyprus and Malta. Since the impact of socioeconomic status on health has been shown in previous research to vary by gender (Strandh et al. 2013), we estimate separate models for men and women.

Our analysis of factors mediating the contagion of the health effects of unemployment between partners we include two variables. First, we combine information on the health status of partners. The second variable measuring the mediating impact of reduction in household income more explicitly is based on individual assessment of household's financial difficulties (on a scale from 1 to 6, with greater scores indicating an ability to make ends meet very easily). Table A1 in the Annex presents the distribution of all the individual-level variables used in our analysis.

In order to examine the moderating role of work obligation for the impact of labor market career of men and women on health, we use a synthetic indicator developed based on European Value Survey by Stam et al. (2013). This indicator is composed of five items: 'To fully develop your talents, you need to have a job', 'It is humiliating to receive money without having to work for it', 'People who don't work turn lazy', 'Work is a duty towards society', and 'Work should always come first, even if it means less spare time'. These items reflect a secular functional approach to the concept of work (Jahoda 1982). Higher scores indicate strong work obligation<sup>4</sup>. In order to examine whether the effect of partners' unemployment differs across societies with diverging gender role attitudes, we include a contextual variable indicating country-specific proportion of people who agree with a statement "When jobs are scarce, men should have more right to a job than women" derived from European Social Survey 2004. This variable has been used in a number of previous studies examining antecedents and

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<sup>2</sup> As a result of using a lagged variable, our analysis effectively uses panel data over the period 2004-2014, because the first wave needs to be omitted from analysis. Note that our control variable is different from our dependent variable, i.e. self-rated health, meaning that we *do not* adopt a strategy of conditioning on baseline outcome levels.

<sup>3</sup> While Germany is included in the panel EU-SILC data, it covers two waves only, and hence had to be excluded from our analyses.

<sup>4</sup> Stam et al (2016) present evidence on high reliability of these measures: their factor analysis shows that all items load on one factor with an eigenvalue of at least 1 in all countries and the Cronbach's alpha ranges from 0.58 to 0.79. We checked that excluding countries that have Cronbach's alpha scores lower than 0.65 does not change our results.



consequences of gender role attitudes as it measures the social perception of the primacy of male breadwinner role (Davis & Greenstein 2009).

## Empirical results

### Results from panel data models

For descriptive purposes, in the first step we estimate standard correlated random models which do not take the European diversity of social contexts explicitly into account. The results from these models estimated separately for men and women are presented in Table 1 (Model 1 and 3). According to our results, becoming unemployed is associated with statistically significantly poorer self-rated health among both men and women. Transition into inactivity is associated with a negative effect only among men, though. After controlling for unobserved heterogeneity among young people (Model 2 and 4 in Table 1), the impact of both unemployment and inactivity weaken but remain statistically significant among men and are revealed to play no major role among women.

The results from our analyses show as well what is the impact of partners' labor market status on self-rated health. Standard random effects models (Model 1 and 3) indicate that individual unemployment is associated with scores indicating poorer health. Our analyses reveal that it is not only individual, but also partner's unemployment that is associated with statistically significantly poorer health among men and women. This association is stronger in case of male partner's unemployment on women's health and the size of that effect corresponds to about 12% of a standard deviation, whereas the same association among men is twice weaker. After controlling for unobserved heterogeneity within correlated random effects models (Model 2 and 4 in Table 1), the impact of partner's unemployment weakens but remains statistically significant among women and has no effect among men. Interestingly, after controlling for unobserved heterogeneity, women are no longer negatively affected by their own unemployment, but they do report poorer health if their husband is unemployed. The reverse is true for men. Partner's inactivity affects self-rated health neither among men nor among women.

Table 1. The impact of individual and partners' unemployment on self-rated health among young men and women – results from panel data models.

	Model 1		Model 2		Model 3		Model 4	
	RE model, men		Correlated RE model, men		RE model, women		Correlated RE model, women	
	coef	se	coef	se	coef	se	coef	se
Age	0.02***	(0.00)	0.02***	(0.00)	0.02***	(0.00)	0.02***	(0.00)
<i>Education (ref. ISCED 2)</i>								
ISCED0_1	0.01	(0.03)	0.00	(0.03)	0.05**	(0.02)	0.04*	(0.02)
ISCED3	-0.10***	(0.02)	-0.09***	(0.02)	-0.09***	(0.01)	-0.08***	(0.01)
ISCED4	-0.13***	(0.03)	-0.12***	(0.03)	-0.16***	(0.03)	-0.15***	(0.03)
ISCED5	-0.21***	(0.02)	-0.20***	(0.02)	-0.20***	(0.01)	-0.19***	(0.01)
LLSI*	0.35***	(0.02)	0.35***	(0.02)	0.37***	(0.01)	0.37***	(0.01)
<i>Partnership status (ref. Has a partner)</i>								
No partner	0.04**	(0.02)	0.03*	(0.02)	0.02	(0.01)	0.01	(0.01)
<i>Labor market status (ref. Employment)</i>								
Unemployment	0.10***	(0.02)	0.05**	(0.02)	0.07***	(0.01)	0.01	(0.02)
Inactivity	0.10***	(0.02)	0.09***	(0.03)	0.00	(0.01)	-0.02	(0.01)
<i>Partner's labor market status (ref. Employment)</i>								
Unemployment	0.04**	(0.02)	0.02	(0.02)	0.08***	(0.02)	0.05**	(0.02)
Inactivity	0.01	(0.01)	-0.01	(0.02)	0.02	(0.02)	-0.02	(0.03)
<i>Country group (ref. Western European)</i>								
Nordic	-0.02	(0.02)	-0.02	(0.02)	-0.01	(0.02)	-0.01	(0.02)
Anglo-Saxon	-0.06**	(0.03)	-0.06**	(0.03)	-0.03	(0.02)	-0.03	(0.02)
Southern	0.14***	(0.02)	0.13***	(0.02)	0.12***	(0.01)	0.11***	(0.01)
Postsocialist	0.14***	(0.01)	0.14***	(0.02)	0.14***	(0.01)	0.13***	(0.01)
South-Eastern**	-0.21***	(0.03)	-0.21***	(0.03)	-0.20***	(0.02)	-0.21***	(0.02)
Constant	1.05***	(0.06)	1.01***	(0.07)	1.31***	(0.05)	1.27***	(0.05)
N	17209		17209		28114		28114	

Source: EU-SILC 2003-13. Note: Self-rated health ratings: 1=very good, 5= very bad. \* Limiting Long-Standing Illness, lagged values. \*\*South-Eastern group includes Cyprus, Malta and Croatia.



The effects of control variables are consistent with the results from previous studies (Brand 2015), stable across models and do not show almost any gender differences. According to our results, age is associated with poorer self-rated health, whereas education attainment is associated with more positive health outcomes. Limiting long-standing illness reported in the first wave of survey is associated with substantially poorer health, which underscores the importance of controlling for baseline health in our longitudinal analyses. Partnership status seems to play a positive role, but only for men's health. Our analyses reveal health differences across welfare state regimes. Living in Southern Europe and postsocialist countries is associated with health disadvantage as compared to Western Europe or Nordic countries. Men living in Anglo-Saxon countries as well as in Croatia, Malta and Cyprus tend to have better health, whereas among women the same holds only for the Southern-Eastern group of countries.

Our theoretical framework indicates two specific mechanisms which lead to contagion of health effects of unemployment among partners: reduction in households income and transmission of distress. While a formal mediation analysis is beyond the scope of this paper, we can test whether income deprivation and partners' poor health are associated with worse individual health and also whether controlling for these variables reduces the effect of partner's unemployment on health. The results presented in Table 2 confirm all these expectations. One score increase in the scale indicating poor health of a partner is related to a rather substantial (of about 30% standard deviation) increase in individual reports of poor health. Controlling for partner's health eliminates the effect of partner's unemployment on individual health. The effects of reduction in households income (measured on a scale from 1 to 6) seem to be much less strongly related to individual health, although they are statistically significant and controlling for the household's ability to make ends meet also reduces the effect of partners unemployment. In sum, it seems plausible to think that both mechanisms, of reduction in household income and transmission of distress, may be at work and contribute to the contagion of health effects of unemployment among partners.



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Table 2 Results for mediating role of reduced household income and partners' health.

	Model 5 Correlated RE model, men		Model 6 Correlated RE model, women		Model 7 Correlated RE model, men		Model 8 Correlated RE model, women	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
<i>Partner's labor market status (ref. Employed)</i>								
Unemployed	0.02	(0.03)	0.02	(0.02)	0.01	(0.02)	0.03	(0.02)
Inactive	0.00	(0.02)	-0.04	(0.03)	-0.02	(0.02)	-0.03	(0.03)
<i>Mediators</i>								
Partner's health	0.20***	(0.01)	0.17***	(0.01)				
Ability to make ends meet					-0.02***	(0.01)	-0.03***	(0.01)
Constant	0.82***	(0.07)	1.07***	(0.05)	1.29***	(0.07)	1.58***	(0.05)
N	14736		25170		17209		28114	

Source: EU-SILC 2003-13. Note: Control variables as in Table 1, p-values: \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ . Model 5 and 6 estimated only for partnered individuals, partnership status is excluded from the list of control variables in these models.

Finally, we move on to the analysis of the role of social norms, which define the degree to which work is valued and not working is stigmatized, and which specify whose work is valued more: male or female partners (Table 3). Our results indicate that among men, partner's unemployment plays no role regardless of whether a society is conservative or egalitarian. Among women, the effect of partner's unemployment varies with gender role attitudes, i.e. conservative attitudes amplify the impact of partner's unemployment. Gender role attitudes themselves are not associated with self-rated health, though. Our results show that societies with higher work ethics tend to have better self-rated health, at the same time we find no interaction between partner's unemployment and work ethics, but we do observe an interaction between partner's inactivity and work ethics among women. It seems that in societies, where people believe that doing paid work is a moral duty, women having a partner who is unemployed do not experience as much distress as those, whose partner does not work and does not search for a job.



Table 3. Results for moderating factors: gender role attitudes and work ethics.

	Model 9		Model 10	
	Correlated RE model, men		Correlated RE model, women	
	Coef.	S.E.	Coef.	S.E.
<i>Partnership status (ref. Has a partner)</i>				
No partner	0.00	(0.05)	-0.06	(0.04)
<i>Partner's labor market status (ref. Employment)</i>				
Unemployment	0.00	(0.06)	-0.03	(0.06)
Inactivity	0.03	(0.04)	-0.11**	(0.05)
Gender role attitudes	-0.20	(0.18)	-0.23	(0.21)
<b>Interaction: Partner's labor market status X Gender role attitudes</b>				
No partner X Gender role attitudes	0.00	(0.07)	-0.00	(0.10)
Partner's unemployment X Gender role attitudes	-0.07	(0.08)	0.20*	(0.11)
Partner's inactivity X Gender role attitudes	-0.00	(0.07)	-0.11	(0.09)
Work ethics	-0.17**	(0.09)	-0.28***	(0.10)
<b>Interaction: Partner's labor market status X Work ethics</b>				
No partner X Work ethics	0.05	(0.13)	0.11	(0.15)
Partner's unemployment X Work ethics	0.05	(0.08)	-0.07	(0.11)
Partner's inactivity X Work ethics	-0.09	(0.06)	0.31**	(0.13)
Constant	1.39***	(0.14)	1.69***	(0.15)
N	15816		25310	

Source: EU-SILC 2003-13. Notes: Control variables as in Model 7 and 8 in Table 3, p-values: \*p<0.10, \*\*p<0.05, \*\*\*p<0.01. Gender role attitudes: country-specific proportion of people who agree with a statement "When jobs are scarce, men should have more right to a job than women" derived from European Social Survey 2004. Work ethics: an indicator developed by Stam et al. (2013). Due to missing values in indicators of social norms, Croatia, Italy and Malta were excluded from analyses.

As a sensitivity analysis, we replaced work obligation with country-specific measures of an aggregate unemployment rate, which has been seen as a proxy for 'the social norm of unemployment' in previous research (Brand 2015; Clark 2010), and hence shows in which countries unemployment is not strongly stigmatized (cp. Table A3 in the Annex). This analysis shows a similar pattern: Again, our results indicated that among men, female partners' unemployment plays no role regardless of whether a society is conservative or egalitarian but gender role attitudes do moderate the impact of partner's unemployment among women. Hence, these results also confirmed that societal conservatism contributes to the transmission of health effects of unemployment from men to their female partners. The effects of interaction between the aggregate unemployment and partners' unemployment were also consistent with our theory-based expectations. An increase in aggregate unemployment rate decreases the overall effect of partner's unemployment on women's health, indicating that in countries, where having no job is more common and less stigmatized, male partner's unemployment is relatively less detrimental for women.

It could be argued that it is not only partners' unemployment, but also the specific aspects of division of paid work within a household that affect individual health and



interact with social norms. For example, male partner's unemployment could be seen as particularly difficult to accept and therefore detrimental for health if combined with female partner's employment. We carried out additional analyses in order to examine this issue in more detail, but to this end we had to combine different groups of non-working partners because of small number of observations in some specific categories (Table A4 in the Annex). Our results show that for unemployed men, having a partner who does have a job is just as harmful as living in a jobless household. For women, no effect of living in a household with a partner who does not work does not seem to have any effect, most likely due to diverging effects of male partners' unemployment and inactivity. Unfortunately, interacting different models of division of paid labor within families with social norms was not feasible due to sample limitations. Our results could be also affected by idiosyncratic shocks, such as the Great Recession. Therefore, we carried out additional analyses controlling for fixed effects for years, our results did not change after introducing these control variables (Table A5 in the Annex).

### Discussion

Our paper contributes to the literature on health effects of unemployment. Unlike most previous studies that focused on individual health, we extend this analysis to show that the perverse effects of lack of jobs may go beyond the individuals who became unemployed and affect also their closest family members, i.e. their partners. The effects of partners' transitions into unemployment are stronger among women as compared to men, implying that contagion of health effects of unemployment is gendered. Our results highlight the role of within-household social interactions and income pooling for health outcomes of people who lose their jobs. We also contribute to the literature discussing the moderating impact of cultural and structural conditions of the effects of unemployment on health and well-being. We show that the degree to which partner's unemployment is detrimental depends on the country-specific context. Men's unemployment deteriorates their female partners' health most of all in conservative countries, with social norms supporting male breadwinner supremacy (Davis & Greenstein 2009). These effects are also stronger in countries with stronger work ethics (Stam et al. 2016) and lower in countries with high aggregate unemployment, which proxies the so-called social norm of unemployment (Clark et al. 2010; Buffel et al. 2016).

Our study focuses on young people, because this social category has been shown to be most vulnerable to the macroeconomic shocks and at the same time youth have few resources that could shield them from the effects of unemployment – whether their own or their partners'. Previous research has shown that contagion of health effects of unemployment does not operate if the analysis focuses on older people only. Nevertheless, it would be interesting to take a life course perspective and examine in a more systematic way how the magnitude of the spillover effects varies across family life course stages. Since our panel data cover four years only, we cannot carry out such



analysis here. However, future research using data stretching over a longer time span could examine this issue.

Our analyses focus on contagion of health effects of unemployment between partners, but we do not bring children into picture. This approach was taken for a number of reasons. Previous research highlights that key consequences of unemployment, such as limited financial margins, are likely to affect both the unemployed individual and his or her partners more directly due to shared financial responsibilities, but the effects on the children's well-being, are likely to be channelled in a more indirect way (Ström 2003). Moreover, considering children might require a more sophisticated modeling because childbearing is selective both with respect to employment status and with respect to health and well-being (Aassve et al. 2015; Andersson 2000).

While our analyses pay a lot of attention to the moderating role of gender roles, this is done by examining the effect of partner's unemployment separately among women than among men and by analyzing interaction of these effects with country-level gender role attitudes. It would be better to take a more nuanced perspective on gender by considering the fact that men and women have different ideas about femininity and masculinity, different attitudes towards their own roles in their families and different expectations towards partners (Springer et al. 2012). Moreover, given family diversity in modern societies, future research could consider the impact of partners' unemployment in the context of same-sex couples. However, these questions are beyond the scope of this paper because the data available to us do not provide information detailed enough to address these issues.

The results from this study are also relevant for evaluations of the reforms which aim at reducing unemployment. Introducing new policies is always based on careful calculation of costs and benefits, but much of the evaluation literature focuses on the re-employment effects of support directed at the unemployed (Card et al. 2015) and disregards the potential public health costs. Moreover, studies in this strand of literature make a somewhat simplistic assumption that individuals eligible for the benefits of the policy are the only group that may potentially gain from it (Smith & Sweetman 2016). Our findings indicate that the assessment of the benefits of a programme targeting the unemployed should not be restricted to the participants of this programme, it needs to include their family members. Hence, the positive impact of programmes targeting the unemployed might be overall much larger than studies analyzing individuals in isolation from their social environment would imply. Our results also suggest the potential benefits from developing family-centered instead of person-centered systems of monitoring of health. Knowledge of adverse life course events experienced by some of the family members may be critical to developing effective therapies for closest relatives whose health problems may be indirectly caused or aggravated by unemployment within the family (Dew et al. 1991; Ström 2003).



## Annex

Table A1. Sample structure – means and proportions.

	Men		Women	
	Mean	St.dev.	Mean	St.dev.
Self-rated health	1.68	0.68	1.76	0.69
Age	27.12	2.64	26.79	2.76
ISCED0_1	5.3%		4.5%	
ISCED2	17.4%		15.5%	
ISCED3	50.9%		45.5%	
ISCED4	3.0%		3.4%	
ISCED5	23.4%		31.2%	
LSLI	12.0%		12.9%	
No partner	14.4%		10.5%	
Labour market status				
employed	83.9%		60.3%	
unemployed	9.2%		9.9%	
inactive	6.9%		29.8%	
Partner's labour market status				
employed	52.7%		76.1%	
unemployed	8.6%		7.4%	
inactive	24.3%		3.5%	
Nordic	16.3%		13.5%	
Anglosaxon	4.8%		5.0%	
Western	26.0%		25.6%	
Southern	13.3%		15.3%	
Postsocialist	35.9%		36.6%	
South-Eastern	3.6%		4.0%	
<i>Mediators</i>				
Partner's health	1.74	0.68	1.74	0.69
Ability to make ends meet	3.25	1.29	3.20	1.26

Source: EU-SILC 2003-13.



Table A2. Distribution of contextual variables across countries.

Country	Gender role attitudes	Work ethics	Unemployment rate	Sample size
AT	21.6	3.7	5.1	1560
BE	30.7	3.3	7.8	1819
BG	33.2	4.1	9.0	1264
CY	40.0	4.0	9.8	1059
CZ	36.5	3.6	6.0	1614
DK	8.3	3.5	5.5	549
EE	36.5	3.6	8.8	2008
ES	30.4	3.5	16.4	2506
FI	12.4	3.2	7.8	2284
FR	27.9	3.5	9.1	5042
GR	48.2	3.8	10.3	484
HR		3.4	16.2	138
HU	57.3	3.9	9.6	2131
IE	12.8	3.5	11.3	542
IS	23.7		4.7	944
IT		3.7	8.2	2549
LT	28.2	3.5	12.3	738
LU	25.0	3.6	4.8	2226
LV	19.5	3.5	13.0	1401
MT		3.5	6.4	566
NL	22.0	3.1	5.3	1026
NO	8.4	3.6	3.6	1362
PL	41.0	3.5	9.0	4116
PT	38.9	3.9	13.4	1059
RO	35.0	3.9	6.1	791
SE	8.7	3.3	7.5	1461
SI	24.4	3.7	7.2	729
SK	32.3	3.8	12.7	1676
UK	25.3	3.3	7.1	1679

Sources: Gender role attitudes - European Social Survey 2004. Work ethics - Stam et al. (2013). Unemployment rate - Eurostat. Sample size: EU-SILC 2003-13.



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Table A3. Results for moderating factors: gender role attitudes and social norm of unemployment.

	Men Coef.	S.E.	Women Coef.	S.E.
<i>Partnership status (ref. Has a partner)</i>				
No partner	0.11**	(0.05)	0.05	(0.05)
<i>Partner's labor market status (ref. Employment)</i>				
Unemployed	0.09	(0.07)	0.06	(0.07)
Inactive	0.01	(0.05)	0.00	(0.09)
Gender role attitudes	-0.30*	(0.16)	-0.32*	(0.19)
<b>Interaction: Partner's labor market status X Gender role attitudes</b>				
No partner X Gender role attitudes	0.13	(0.11)	0.14	(0.10)
Partner's unemployment X Gender role attitudes	0.03	(0.13)	0.16**	(0.08)
Partner's inactivity X Gender role attitudes	-0.04	(0.06)	0.07	(0.07)
Unemployment rate	-0.01	(0.01)	-0.00	(0.01)
<b>Interaction: Partner's labor market status X Unemployment rate:</b>				
No partner X Unemployment rate	-0.01***	(0.01)	-0.02**	(0.01)
Unemployed partner X Unemployment rate	-0.01	(0.01)	-0.01**	(0.00)
Inactive partner X Unemployment rate	-0.00	(0.00)	-0.01	(0.01)
Macroeconomic shocks	-0.00	(0.01)	0.01	(0.01)
<b>Interaction: Partner's labor market status X Macroeconomic shocks:</b>				
No partner X Macroeconomic shocks	0.00	(0.01)	0.00	(0.00)
Unemployed partner X Macroeconomic shocks	0.01**	(0.00)	0.01	(0.01)
Inactive partner X Macroeconomic shocks	0.01**	(0.01)	-0.00	(0.01)
Constant	1.40***	(0.15)	1.61***	(0.15)
N	16196		25874	

Source: EU-SILC 2003-13. Note: Control variables as in Table 1, p-values: \*p<0.10, \*\*p<0.05, \*\*\*p<0.01.

Table A4. Results for moderating factors: gender role attitudes and social norm of unemployment.

	Men Coef.	S.E.	Women Coef.	S.E.
<i>Partners' labor market status (ref. dual earner household)</i>				
Employed, no partner	0.04*	(0.02)	-0.02	(0.02)
Not employed, no partner	0.12***	(0.03)	0.02	(0.02)
Employed, partner not employed	0.00	(0.02)	-0.00	(0.03)
Not employed, partner employed	0.07**	(0.03)	-0.00	(0.01)
Both partners not employed	0.06**	(0.03)	0.04	(0.02)
Constant	1.03***	(0.06)	1.27***	(0.05)
N	17226		28141	

Source: EU-SILC 2003-13. Note: Control variables as in Table 1, p-values: \*p<0.10, \*\*p<0.05, \*\*\*p<0.01.



Table A5. Results for moderating factors: gender role attitudes and social norm of unemployment.

	Men Coef.	S.E.	Women Coef.	S.E.
<i>Partnership status (ref. Has a partner)</i>				
	0.03*	(0.02)	-0.03*	(0.02)
<i>Partner's labor market status (ref. Employment)</i>				
Unemployed	0.05**	(0.02)	0.01	(0.02)
Inactive	0.09***	(0.03)	-0.02	(0.01)
<i>Partner's labor market status (ref. Employment)</i>				
Unemployed	0.02	(0.02)	0.05**	(0.02)
Inactive	-0.01	(0.02)	-0.02	(0.03)
<i>Fixed effects for years (ref. 2004)</i>				
2005	0.03	(0.04)	0.10***	(0.03)
2006	0.03	(0.06)	0.08*	(0.04)
2007	0.07*	(0.04)	0.17***	(0.03)
2008	0.07	(0.04)	0.17***	(0.03)
2009	0.07	(0.04)	0.17***	(0.03)
2010	0.07	(0.05)	0.24***	(0.04)
2011	0.07	(0.04)	0.17***	(0.03)
2012	0.06	(0.04)	0.16***	(0.03)
2013	0.07*	(0.04)	0.19***	(0.03)
Constant	0.96***	(0.08)	1.09***	(0.06)
N	17209		28114	

Source: EU-SILC 2003-13. Note: Control variables as in Table 1, p-values: \*p<0.10, \*\*p<0.05, \*\*\*p<0.01.



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