

The Effect of Precarious Employment on the Health of Domestic Workers

**The Effect of Precarious Employment Conditions on the Health of Domestic Workers –
Testing the Mediating Role of Psychosocial Stressors and Economic Deprivation in a
Comparative Framework**

Social Policy and Public Health

Master Thesis

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Abstract

Precarious employment has been on the rise across Europe. Particularly domestic workers are disproportionately affected by poor employment conditions that may adversely affect their health. However, little is known about the mechanisms that may explain how precarious employment is related to poor health. To better understand this relationship, I investigated how psychosocial stressors such as demands and feelings of control at work, as well as being economically deprived may act as underlying pathways. Moreover, I assessed whether this relationship is more strongly explained by economic deprivation in France and Germany as compared to in Sweden, Denmark and Belgium. Therefore, I used the cross-sectional European Working Conditions Surveys (EWCS) of 2010 and 2015, $N = 2078$, which included working women and men aged 15 or older. Probit regressions were conducted to assess the relationship between precarious employment and self-rated general health through economic deprivation and psychosocial stressors, with further stratification by country group. We found that the majority of domestic workers reported “good” or “very good” health, of which most were in less precarious employment conditions. The results supported that higher precarious employment increases the likelihood of reporting worse health and that this was partly explained by feeling more economically deprived. Surprisingly, only demands at work and not feelings of control were related to self-rated general health, particularly, those in more precarious employment were more likely to have lower demands at work and as a result reported better health. Analysis by country groups showed no conclusive difference between domestic workers from France and Germany compared to Sweden, Denmark and Belgium. The findings suggest the importance of material realities and may inform policy-makers to intervene in wages to reduce adverse health outcomes

The Effect of Precarious Employment on the Health of Domestic Workers

for domestic workers. Future research is needed to better understand through which other mechanisms precarious employment may predict worse health.

Key words: precarious employment, domestic workers, economic deprivation, psychosocial stressors, demand, control, country comparison

Background

Precarious employment has been on the rise since the late 1980s in Europe (ILO, 2012). According to the ILO (2011), precarious employment is defined as uncertainty, having an ambiguous employment relationship, a lack of access to social protection and benefits associated with low pay or obstacles in joining a trade union. Literature suggests that the group of domestic workers is more likely to be precariously employed than workers from other industries (Jokela, 2019). Domestic work includes tasks such as cooking, cleaning and nursing, as well as caring and loving as emotional work and social support (Tronto, 1989). Domestic workers were found to frequently report back pain due to heavy lifting or high levels of stress, symptoms of depression and reduced well-being comparison to other occupational groups (Theodore et al., 2019).

To address the adverse health effects that domestic workers may face as a consequence of being precariously employed, a better understanding of the mechanisms that underly this relationship is necessary. Psychosocial stressors (Karasek & Theorell, 1990), i.e., life situations that create intense levels of stress that may increase proneness to mental illness or maladaptive behavior (APA, n.d) at work, as well as economic insecurities may account for that relationship (Peng, 2019). While these two pathways were mostly investigated separately (Chung & Mak, 2020), including both simultaneously may provide a fuller picture. Drawing upon the disciplines of psychology and sociology respectively, allows for tackling direct working conditions by e.g., improving autonomy at work, while facilitating a more upstream approach by tackling the substantial roots of the problem (Muntaner & O'Campo, 1993), such as material realities, e.g., through increasing wages. Moreover, since comparative studies of precarious employment in relation to health in domestic workers are rare, comparing European countries and their specific domestic labor regulations can illuminate how different precarities affect health (Hellgren,

2015).

This study will focus on how precarious employment may predict health in domestic workers and whether this relationship is partly explained by psychosocial stressors and economic deprivation, while investigating potential differences between European countries.

Literature Review

To date most studies have assessed the consequences of precarious employment on health only through one dimension (Kvist et al., 2012), e.g., job insecurity or temporary employment (De Witte et al., 2016). However, precarious employment is suggested to be a multidimensional concept (Vives et al., 2010). Moreover, some suggest that high demands and low control at work explain why precarious employment is associated with health problems (Anjara et al., 2017). Another study found that having low demands and low control predict worse health due to the passive nature of the job (Kvart et al., 2021). Yet others emphasize the role of financial difficulties as their findings show that for instance during the economic recession in 2008, workers were especially suffering from stress and ill mental health (Frasquilho et al., 2016).

Some suggest that differences may exist based on welfare regime types. Kim et al., (2012) found that precarious workers in Scandinavian countries report better or equal health compared to permanent workers, and in comparison to other welfare regime types. By contrast, the relationship between working conditions and health is also suggested to follow no welfare regime pattern (Bambra et al., 2014; Jokela, 2019). More importantly may be labor policies as countries differ in the degree to which they introduce regulations that benefit domestic workers (Adriaenssens et al., 2021).

Relationship between Precarious Employment and Health

Precarious employment may predict worse health through feelings of insecurity, e.g.,

The Effect of Precarious Employment on the Health of Domestic Workers

holding a temporary contract. According to the role theory by Jacobson (1991), the anticipation of joblessness, may have detrimental effects on (mental) health as it is associated with an uncertain future (Griep et al., 2016). Furthermore, Jahoda's (1986) latent deprivation model argues that work plays a central role in people's lives as it provides income and a source for social contacts. Thus, anticipating job loss can lead to losing financial and social resources (De Witte, 1999). As a result, higher stress can predict anxiety and reduced well-being (Lazarus & Folkman, 1984).

Domestic workers pose a special case as societal norms and culture influence their increased vulnerability to precarious employment and subsequently worse health. According to the devaluation thesis, our society devalues women and work done by them (Cancian & Oliker, 2000; England et al., 2002). As a result, society views these domestic tasks as typically feminine and natural and is thus not worth decent pay (Steinberg, 1990). Moreover, the separation of the public and private sphere according to gender (Arendt, 1981), may also explain the unrecognition of domestic workers. Since domestic work is happening in the private sphere, and the private sphere is deemed feminine, it has a lower status than the male domain of the public sphere which comprises professional work and politics.

The Mediating Role of Psychosocial Stressors and Economic Deprivation

To explain the effect of precarious employment on health, ample literature refers to the psychosocial demand-control theory (Karasek, 1979), which argues that a combination of high demands and low control at work result in high job strain. By contrast, jobs with high demands and high control are considered to be active jobs. This is called the strain hypothesis where different constellations of demands and control at work are related to differing stress levels (Baba, 2013), resulting in adverse mental and physical health (Bambra et al., 2014). This is

The Effect of Precarious Employment on the Health of Domestic Workers

further supported by the self-determination theory (Deci & Ryan, 1985) which posits that one of our innate human needs is autonomy. Thus, being deprived of autonomy or similarly feelings of control may have negative psychological consequences.

Job strain at work is very typical for domestic workers since one the one hand, their tasks are both physically and psychologically demanding (Anjara et. al., 2017; Muntaner et al., 2006). On the other hand, due to the informal working environment, their relationships with employers may be more ambiguous and the power relations rather asymmetric (Lutz, 2008). As a result, this can decrease their decision latitude at work. Moreover, domestic workers may feel trapped in their precarious situation as they may be more financially dependent on the job than other workers. Thus, they can feel forced to adhere with the employer's orders, further reducing their autonomy.

Said that, neglecting economic deprivation as important factor resulting from precarious employment may in fact overestimate the influence that psychosocial stressors have on health (Bacci et al., 2017; Benach et al., 2014). Economic deprivation refers to the "inability for individuals or households to afford those consumption goods and activities that are typical in a society at a given point in time, irrespective of people's preferences with respect to these items" (OECD, 2007). Financial difficulties can decrease personal control and self-esteem (Price et al., 2002). As a result, chronic stress can develop, which is associated with poor health (Frank et al., 2014), feelings of despair and substance use (Bletzer, 2004; Chung et al., 2018; Papadopoulos et. al., 2004).

Women were found to be particularly affected by adverse life events such as financial and housing problems (Cambois & Jusot, 2011), which subsequently affect their health negatively (Shippee et al., 2012). This may be explained by decreasing access to resources that

The Effect of Precarious Employment on the Health of Domestic Workers

women have in comparison to men (Artacoz et al., 2001). They often earn less due to the gender wage gap and face additional burden through the care responsibilities at home (Brewer, 2001). Moreover, women are more likely to become poor and face increasing difficulties to exit poverty in comparison to men (Cellini et al., 2008). Thus, again since domestic works is mainly done by women and generally insufficiently remunerated, domestic workers pose a special risk to be economically deprived.

Comparative Framework of the Study

It is necessary to investigate the structural forces at play since differences between countries exist in regulating domestic services (Kvist, 2012; Muntaner et al., 2006). For instance, Belgium introduced the voucher system called *titres-service* where households could buy domestic services through highly subsidized vouchers from a company with the goal to reduce undeclared work (Renooy et al., 2004). Denmark and Sweden use tax credits to incentivize the purchase of formal domestic services (Kvist et al., 2009). In all three countries the public care infrastructure is well established (Calleman, 2007), and the domestic services can only be purchased through a company and not directly by the household which is associated with less precarious working conditions (Farvaque, 2013).

By contrast, in France and Germany, domestic services are mostly purchased directly by the households (Farvaque, 2013). Nevertheless, France has adopted several measures in the past to regulate domestic work through vouchers (ILO, 2013) and tax incentives. However, the reforms that were originally managed by the state are now mostly regulated by businesses which are more concerned about cheap labor than about decent working conditions (Pernigotti, 2012). Thus, work is increasingly characterized by flexibility like in Germany (Farvaque, 2013), where the domestic workers work under the so-called mini-job scheme, and do not enjoy full benefits

and the same rights as other workers under the general scheme (ILO, 2016).

Subsequently, more generous welfare states were found to buffer adverse health effects resulting from exposure to psychosocial job strain at work (Van der Wel et al., 2015). In fact, when the welfare state is rather generous with the social expenditures, the health of workers may be more strongly affected by job strain than by economic deprivation. This is argued to be the case because the welfare state can provide coping resources such as money or health and care services. Thus, the autonomy and the ability of employees to manage their health may be strengthened (Van der Wel et al., 2015). This is in line with the protective model of resilience (Fergus & Zimmerman, 2005) that argues that resources can cushion the influence of a particular risk factor.

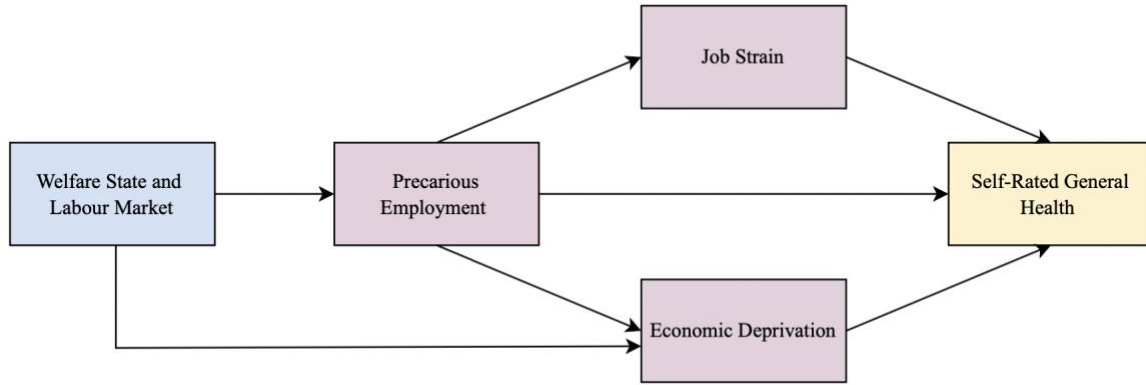
Research Objectives

I used the European Working Conditions Surveys (EWCS) of 2010 and 2015 to investigate how precarious employment is associated with health. I hypothesized that higher precarious employment predicts worse health and that both psychosocial stressors and economic deprivation partly mediate the relationship between precarious employment and health equally. Moreover, in France and Germany, where domestic work is less regulated, the relationship of precarious employment with self-rated health is more strongly mediated through economic deprivation than psychosocial stressors, as compared to in Sweden, Denmark and Belgium. Figure 1 shows a model based on the framework by Benach et al., (2014), which includes micro- as well as macro-factors in assessing the relationship between precarious employment and health.

Figure 1.

Conceptual Model including Micro-and Macro level influences on Self-Rated General Health.

The Effect of Precarious Employment on the Health of Domestic Workers



H1: Precarious employment is negatively related to self-rated general health.

H2: The association between precarious employment and self-rated general health is equally mediated by psychosocial stressors and economic deprivation.

H3: The association between precarious employment and self-rated general health will be more strongly mediated through economic deprivation than job strain in the countries with poorer labor market regulations.

Method

Participants and Design

A cross-sectional study was conducted with data from the European Working Conditions Surveys (EWCS) of 2010 and 2015. The surveys are conducted every five years in all EU Member States and in few additional countries. Almost 44 000 workers were interviewed in 2010 and 2015, covering 34 and 35 countries, respectively. The EWCS consists of a broad range of topics, from precarious employment, work-life balance to health and well-being.

Overall in both surveys, a multi-stage, stratified and random sample of the working population aged 15 or older was used. The countries were stratified by region and degree of urbanization of which primary sampling units were randomly selected. Then, random samples of

The Effect of Precarious Employment on the Health of Domestic Workers

households were drawn in each unit and finally those in the workforce whose birthday is next were interviewed, unless individual-level registers were used as in 2015. Participants were recruited through visits, phone calls and/or letters and the face-to-face interviews lasted around 45 minutes at the respondents' homes.

For this study, the data set was filtered to specifically include the occupational groups of personal care workers and cleaners and helpers from the countries Belgium ($n= 663$), Sweden ($n= 186$), Denmark ($n= 181$), Germany ($n= 360$) and France ($n= 688$). Two country clusters were formed with Belgium, Sweden, Denmark ($n= 1030$) together and France and Germany ($n= 1048$), adding up to a total sample of $N= 2078$, with females and males aged 15 or older. Only those who are mainly employed as domestic workers were included since the relevant questions of the survey mostly referred to experiences in the main job (see Appendix A for the questions).

Self-Rated General Health

Health was measured with the subjective question, “How is your health in general?”. A similar question was also used by other scholars to measure self-rated health (Cayuela et al., 2018). The answer possibilities ranged from 1 to 5, and were reverse coded in the study. Since the responses were mainly clustered around three groups, health was coded with three levels 1= *bad or very bad health*, 2= *fair health*, 3= *good or very good health*.

Precarious Employment

I drew upon the review by Kreshpaj et al., (2020) who recognized three dimensions of precarious employment, namely employment insecurity (e.g., temporariness of contract), income inadequacy (e.g., income level) and lack of rights and protection (e.g., lack of unionization). Contract temporariness was measured with “What kind of employment contract do you have in your main paid job?”. All respondents with no permanent contract were coded as 1 = *precarious*

contract since this is characterized by high insecurity. In contrast, those with a permanent contract were coded as 0 = *no precarious contract*.

Income inadequacy was measured with the question “How much are your net monthly earnings from your main paid job?”. Respondents could fill in an answer or choose from several income ranges, e.g., earning between 2001 and 2300 Euros, resulting in two variables in the data set. To attain one “income” variable, the averages of the respective income ranges from the EWCS 2010 and 2015 were calculated, e.g., for the aforementioned range the average was 2150,5 Euros. These values were then assigned to the respondents that only reported a range and were merged with the other ones who reported a specific income. To identify those with an inadequate income, the at-risk-of-poverty threshold¹ of each country from 2010 and 2015 was taken from Eurostat (2022). Respondents falling below their corresponding threshold, were coded with a 1 = *inadequate income* or when falling above as 0 = *adequate income*.

A lack of rights and protection was measured with having a trade union and the question, “Does a trade union, works council or a similar committee representing employees exist at your company or organization?”. The answers were coded as 1 = *not having a trade union* 0 = *yes, having a trade union*. Overall, a score of 1 is given for each of the three precarious employment conditions “fulfilled”. So the higher the score, the more precarious the employment, resulting in 0 = *no precarity* and 3 = *highest precarity*.

Psychosocial stressors

To measure the mediating role of psychosocial stressors, the Job Content Questionnaire (Karasek & Theorell, 1990), which is based on the Demand Control Theory (Karasek, 1979),

¹ 60% of the median equivalized income.

The Effect of Precarious Employment on the Health of Domestic Workers

served as an orientation. Demand was measured with “Does your main job involve, among other things, tiring or painful positions, repetitive hand or arm movements and handling angry clients?” and “Does your job involve a) working at high speed or b) working towards tight deadlines?”. Answers were given on a frequency scale from 1= *all of the time* to 7= *never*. Those who answered “half of the time” or more often, i.e., ≤ 4 , got a score of 1. Since there were eight questions in total, the scores ranged from 0 to 8. Subsequently, those with a score of 4 or higher were dummy coded as 1=*high demand* and 0= *low demand*. Cronbach’s Alpha is .715.

Moreover, one dimension that characterizes job control is decision authority (Kvart et al., 2021). It was measured with the three questions “Are you able to choose or change a) your order of tasks, b) your methods of work and c) your speed or rate of work?”. The answers were coded as 1= *Yes* and 0= *No*. Then, all “Yes” responses were counted, scores ranged from 0 to 3. So, a score of two or three was dummy coded as 1=*high control* and a score lower than two was coded as 0= *low control*. Cronbach’s Alpha is .732.

Economic Deprivation

Economic deprivation was assessed with, “Thinking of your household’s total monthly income, is your household able to make ends meet?”, answers were given on a scale from 1= *very easily* to 6= *with great difficulty*. This question was recognized as a strong indicator for economic deprivation, but also for predicting the self-evaluated health status (Bacci et al., 2017).

Country groups

I clustered the countries in relation to the policies that are in place to regulate domestic work since researchers proposed that categorizing countries according to their welfare regime type may not be ideal for assessing the relationship between health and working conditions (Bambra et al., 2014; Jokela, 2019). The first group included domestic workers from Sweden,

The Effect of Precarious Employment on the Health of Domestic Workers

Denmark and Belgium and the other consisted of respondents from Germany and France.

Further, the mediation analysis was conducted separately with both data sets.

Control Variables

Literature suggests that being a woman, older, an ethnic minority and having completed a lower educational level predict worse health (Benach & Muntaner, 2007). Thus, we control for gender, 1= *female*, 0= *male*, age, which was indicated numerically, and the birth place “Were you and both of your parents born in [the respective country]?”, coded as 1= *Yes*, 0= *No*. Lastly, the ISCED97 scale (ILOSTAT, n.d.) was used to categorize education since it has less categories than the ISCED11 and hence allowed for merging both information from the EWCS 2010 and 2015.

Statistical Analysis

The descriptives were reported in frequencies and percentages, except age and income that were reported with a mean. For testing significant differences between the variables, chi-square tests were calculated. To test hypothesis 1, a step-wise probit regression,² with diagonally weighted least squares (WLSMV),³ was conducted for the sake of consistency since it is the only model that allowed for testing Hypothesis 2, i.e., a mediation with an ordered mediator and an ordered dependent variable. The assumption were met except for the parallel lines, particularly violated by educational attainment, resulting in excluding that control variable from the analysis (see Appendix B). Self-rated general health was the dependent variable and in Model 1, precarious employment was added as independent variable, in Model 2, the control variables age,

² An ordered probit regression is possible see Mplus guide (Muthén & Muthén, 1998-2017, p.25).

³ A robust estimator which does not assume normally distributed variables and provides the best option for modelling categorical or ordered variables (Brown, 2006).

gender and country of birth were added, and in Model 3 economic deprivation, demand and control were added. To test hypothesis 2, a parallel mediation was conducted only with demand and economic deprivation as mediators after doing an interaction and finding that merely demand significantly predicted health (see Appendix C). For hypothesis 3, the data file was split by country group and the same mediation analysis was conducted with each data file.⁴ All tests were two-sided and the significance level was set to $\alpha = .05$. See Appendix D for the outlier and missing value analysis. All analyses were performed in SPSS v.27 and Mplus v7.2.⁵

Results

Descriptives

Table 1 shows the descriptives. The majority of domestic workers reported having good or very good health (71.2%). Particularly, the domestic workers who are least precariously employed (PE0), reported good or very good health (73.9%) and being very easily able to make ends meet (11.3%) more often, while only 62.2% and 3.4% of the most precariously employed (PE3) claimed the same, respectively. Interestingly, the workers who are in the least precariously employed condition stated most frequently to have high demands at work compared to the other more precariously employed groups. About the same amount reported high control at work across precarity levels. Most of the least precariously employed were from Belgium (36.3%) compared to the majority of the most precariously employed who were from France (47.9%). Further, 55.2% in this sample were personal care workers and of all domestic workers, the

⁴ The amount of pathways through which the relationship between precarious employment and self-rated general health was mediated through demand or economic deprivation respectively, was assessed as approximation for the strength of mediation.

⁵ To simplify analyzing the probit regression outputs, merely the direction of the associations was reported.

The Effect of Precarious Employment on the Health of Domestic Workers

majority were women, born in the respective country like their parents, work in the private sector and have no other paid job.

The Effect of Precarious Employment on the Health of Domestic Workers

Table 1

Characteristics of the study population by level of precarious employment (PE).

Variable	PE level 0	PE level 1	PE level 2	PE level 3	<i>p</i> ¹	Total
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)		<i>n</i> (%)
Total <i>N</i> = 2078						
Age: <i>M</i> = 43, <i>SD</i> = 12						
Income: <i>M</i> = 1278.4 <i>SD</i> = 1195.5						
Self-rated general health					.028	
Bad or Very Bad	35 (4.5)	24 (3.2)	17 (4.5)	3 (2.5)		79 (3.9)
Fair	169 (21.6)	201 (26.5)	96 (25.1)	42 (35.3)		508 (24.9)
Good or Very Good	577 (73.9)	533 (70.3)	269 (70.4)	74 (62.2)		1453 (71.2)
Being able to make ends meet					<.001	
Very Easily	88 (11.3)	51 (6.8)	16 (4.2)	4 (3.4)		159 (7.8)
Easily	214 (27.4)	141 (18.8)	68 (17.9)	22 (19)		445 (21.9)
Fairly Easily	195 (25)	211 (28.1)	107 (28.2)	19 (16.4)		532 (26.2)
With some difficulty	187 (23.9)	214 (28.5)	100 (26.3)	33 (28.4)		534 (26.3)

The Effect of Precarious Employment on the Health of Domestic Workers

With difficulty	71 (9.1)	93 (12.4)	47 (12.4)	20 (17.2)		231 (11.4)
With great difficulty	26 (3.3)	42 (5.6)	42 (11.1)	18 (15.5)		128 (6.3)
Demand					.008	
High	116 (14.8)	92 (12.1)	30 (7.9)	13 (10.9)		251 (12.3)
Low	667 (85.2)	666 (87.9)	352 (92.1)	106 (89.1)		1791 (87.7)
Control					.113	
High	600 (76.8)	551 (72.9)	271 (71.1)	92 (77.3)		1514 (74.3)
Low	181 (23.2)	205 (27.1)	110 (28.9)	27 (22.7)		523 (25.7)
Country					<.001	
Belgium	284 (36.3)	260 (34.3)	80 (20.9)	20 (16.8)		644 (31.5)
Sweden	111 (14.2)	58 (7.7)	15 (3.9)	1 (0.8)		185 (9.1)
Denmark	122 (15.6)	44 (5.8)	10 (2.6)	5 (4.2)		181 (8.9)
Germany	65 (8.3)	137 (18.1)	119 (31.2)	36 (30.3)		357 (17.5)
France	201 (25.7)	259 (34.2)	158 (41.1)	57 (47.9)		675 (33.1)
Gender					<.001	
Female	636 (81.2)	658 (86.8)	345 (90.3)	109 (91.6)		1748 (85.6)

The Effect of Precarious Employment on the Health of Domestic Workers

Male	147 (18.8)	100 (13.2)	37 (9.7)	10 (8.4)		294 (14.4)
You and your parents born in respective country					.334	
Yes	618 (79.1)	589 (77.8)	285 (74.8)	88 (74.6)		1580 (77.6)
No	163 (20.9)	168 (22.2)	96 (25.2)	30 (25.4)		457 (22.4)
Working environment					<.001	
Private sector	301 (39)	437 (58.9)	238 (64)	68 (59.1)		1044 (52.2)
Public Sector	389 (50.4)	215 (29)	85 (22.8)	27 (23.5)		716 (35.8)
other	82 (10.6)	90 (12.1)	49 (13.2)	20 (17.4)		241 (12)
Type of employment					<.001	
Personal care worker	488 (62.3)	407 (53.7)	178 (46.6)	54 (45.4)		1127 (55.2)
Cleaner and helper	295 (37.7)	351 (46.3)	204 (53.4)	65 (54.6)		915 (44.8)
Any other paid jobs					.104	
No	704 (90.3)	679 (90.2)	335 (88.2)	103 (88)		1821 (89.7)
Yes	76 (9.7)	74 (9.8)	45 (11.8)	14 (12)		209 (10.3)

Note. ¹p values are based on chi-square tests.

Hypothesis 1 – Relationship between Precarious Employment and General Health

To assess whether precarious employment predicts self-rated general health, a step-wise probit regression was conducted. Model 1 in Table 2 shows that the most precariously employed (PE3) are less likely to report better self-rated general health, PE3 being marginally significant, $b = -0.24$, $SE = 0.13$, $p = .07$, compared to those with lowest precarious employment (PE0). Moreover, there is a linear pattern, as the likelihood to report better health decreases with increasing precarity, PE1, $b = -.07$, PE2, $b = -.09$ and PE3, $b = -.24$.

Model 2 shows that upon adding the control variables, PE3 became significant, $b = -0.26$, $SE = 0.13$, $p = .047$. Moreover, gender was not significantly predicting health, $p > .05$, while country of birth was, $b = 0.2$, $SE = 0.1$, $p = .018$. Lastly, the variables economic deprivation, demand and control were added to the regression. Model 3 shows that PE3 became more significantly related to self-rated general health ($p = .011$). Since precarious employment negatively predicts self-rated general health after controlling for all the relevant variables, hypothesis 1 is supported, more precarious employment predicts worse self-rated general health.

Table 2

Coefficients of the predictor variables of self-rated general health.

Variables	Two-Tailed		
	Estimate	S.E.	<i>p</i> -value
Model 1			
PE1	-0.07	0.07	.322
PE2	-0.09	0.08	.274
PE3	-0.24	0.13	.067

Model 2

The Effect of Precarious Employment on the Health of Domestic Workers

PE1	-0.10	0.07	.148
PE2	-0.07	0.08	.365
PE3	-0.32	0.13	.047
Age	-0.02	0.00	< .001
Female	-0.06	0.09	.453
Born in respective country	0.16	0.07	.018
Model 3			
PE1	-0.08	0.07	.252
PE2	-0.15	0.09	.089
PE3	-0.34	0.12	.016
Age	-0.02	0.00	< .001
Female	-0.06	0.08	.446
Born in respective country	0.16	0.07	.021
Economic deprivation	-0.30	0.03	< .001
Demand ^a	-0.36	0.03	< .001
Control ^b	0.15	0.04	< .001

Note. PE= precarious employment, PE0= Reference group

a. Demand (1=High, 0= Low)

b. Control (1=High, 0= Low).

Hypothesis 2 – Mediation Analysis

To examine whether economic deprivation and demands at work mediate the relationship between precarious employment and self-rated general health together, a mediation analysis was conducted. Table 3 shows that being more precariously employed compared to not decreased the likelihood of reporting better general health through higher economic deprivation, PE1, 95% CI [-0.11; -0.05], PE2, 95% CI [-0.17; -0.08] and PE3, 95%

The Effect of Precarious Employment on the Health of Domestic Workers

CI [-0.36; -0.12]. Surprisingly, the more precariously employed were also more likely to report better health through lower demand, see Table 3, PE1, 95% CI [0.03; 0.13], PE2, 95% CI [0.17 to 0.32], PE3, 95% CI [0.12; 0.33]. This may be explained through higher precarious employment being related to lower demands, e.g., $a_2 = -0.23$, $p = .001$, while it was higher demands that predict worse health, $b_2 = -0.35$, $p < .001$ (Figure 2). As a result, being more precariously employed may predict better health through lower demands.

Table 3

Specific indirect and total indirect effects of PE1, PE2 and PE3 on SRGH, controlling for Age, Gender and Country of Birth.

Total and specific indirect effects	Two-Tailed			
	Estimate	S.E.	<i>p</i> -value	Boot 95% CI
Effects from PE1 to SRGH				
	Specific indirect effect			
PE1 → Economic Deprivation → SRGH	-0.08	0.02	< .001	[-0.11; -0.05]
PE1 → Demand → SRGH	0.08	0.03	.001	[0.03; 0.13]
Total indirect effect	0.00	0.03	.952	[-0.06; 0.06]
Effects from PE2 to SRGH				
	Specific indirect effect			
PE2 → Economic Deprivation → SRGH	-0.12	0.02	< .001	[-0.17; -0.08]
PE2 → Demand → SRGH	0.24	0.04	< .001	[0.17; 0.32]
Total indirect effect	0.11	0.05	.018	[0.02; 0.21]
Effects from PE3 to SRGH				
	Specific indirect effect			

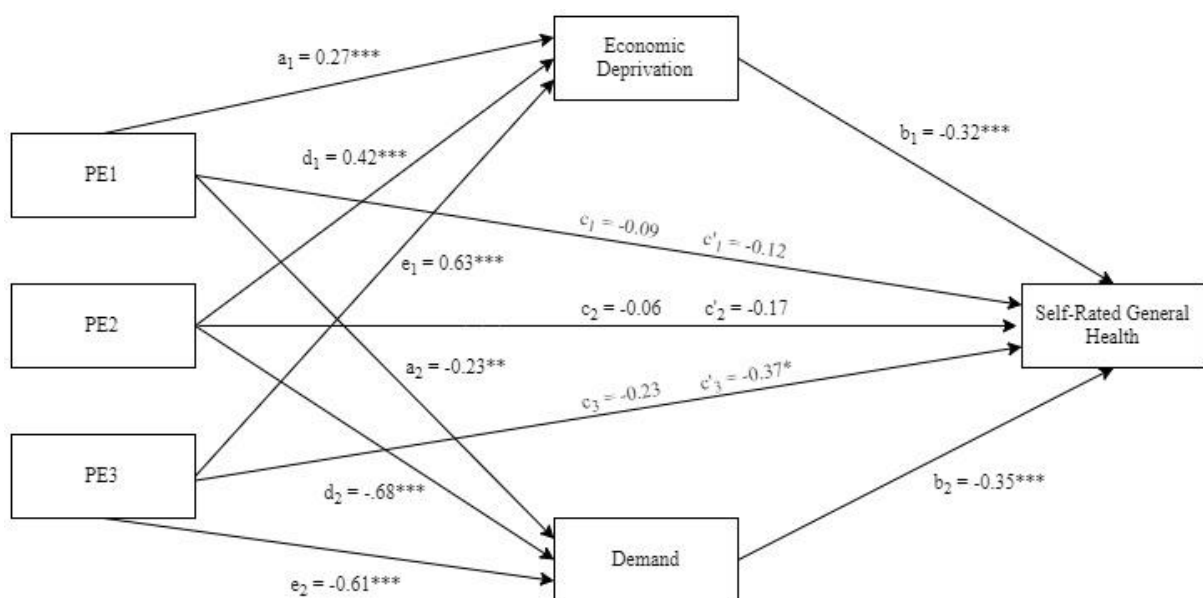
The Effect of Precarious Employment on the Health of Domestic Workers

PE3 → Economic Deprivation → SRGH	-0.19	0.04	< .001	[-0.36; -0.12]
PE3 → Demand → SRGH	0.21	0.06	< .001	[0.12; 0.33]
Total indirect effect	0.03	0.08	.711	[-0.11; 0.18]

Note. SRGH= self-rated general health, PE= precarious employment.

Figure 2.

Total and Indirect Effects of Precarious Employment Levels on Self-Rated General Health Through Economic Deprivation and Demand.



Note. * $p < .05$, ** $p < .01$, *** $p < .001$

So, hypothesis 2 is one the one hand not supported since both indirect effects mediate the relationship of precarious employment on self-rated general health in opposite directions. Subsequently, resulting in non-significant joint effects (see Table 3, total indirect effects p 's > .05, except for PE2, $p = .018$). On the other hand, since economic deprivation and demand separately mediate the aforementioned relationship, hypothesis 2 is partially supported. Those who are more precariously employed are more likely to report worse health due to feeling more economically deprived. However, surprisingly they are also more likely to report better health due to lower demands.

Hypothesis 3 - Country Comparison

Regarding the third hypothesis, it was of interest to examine whether the association between precarious employment and self-rated general health was more strongly mediated through economic deprivation than demand in the countries France and Germany, compared to Belgium, Sweden and Denmark. Table 4 shows that respondents from France or Germany, who “fulfilled” at least one precarious employment condition were more likely to report better health through lower demands, PE1, 95% CI [0.10; 0.35], whereas at least two precarious employment conditions need to be “fulfilled” to predict worse health through economic deprivation, PE2, 95% CI [-0.27; -0.02]. By contrast, in Sweden, Belgium and Denmark, no pattern could be observed, as precarious employment and health were mediated through economic deprivation only for PE1, 95% CI [-0.11; -0.03], while being mediated only through lower demands for PE2, 95% CI [0.06; 0.38]. Since in France and Germany, the relationship of precarious employment and health is stronger mediated through demands than economic deprivation, hypothesis 3 is not confirmed. The relationship between precarious employment and self-rated general health is not stronger mediated through economic deprivation than demand in France and Germany in comparison to Belgium, Denmark and Sweden (see Appendix E for the path models).

Table 4 Total and specific indirect effects for France and Germany, and Sweden, Denmark and Belgium, controlling for Age, Gender and Country of Birth.

Country group	Total and specific indirect effects	Two-Tailed			
		Estimate	S.E.	<i>P</i> -value	Boot 95% CI
France, Germany	Effects from PE1 to SRGH				
		Specific indirect effect			

The Effect of Precarious Employment on the Health of Domestic Workers

	PE1 → Economic Deprivation → SRGH	-0.03	0.03	.230	[-0.18; 0.02]
	PE1 → Demand → SRGH	0.24	0.5	< .001	[0.10; 0.35]
	Total indirect effect	0.22	0.06	.005	[-0.05; 0.39]
<hr/>					
	Effects from PE2 to SRGH				
		Specific indirect effect			
	PE2 → Economic Deprivation → SRGH	-0.08	0.03	.017	[-0.27; -0.02]
	PE2 → Demand → SRGH	0.45	0.07	< .001	[0.24; 0.54]
	Total indirect effect	0.32	0.08	< .001	[0.14; 0.56]
<hr/>					
	Effects from PE3 to SRGH				
		Specific indirect effect			
	PE3 → Economic Deprivation → SRGH	-0.17	0.05	.001	[-0.28; -0.17]
	PE3 → Demand → SRGH	0.35	0.08	< .001	[0.22; 0.53]
	Total indirect effect	0.24	0.10	.08	[-0.01; 0.44]
<hr/>					
Sweden, Demark, Belgium	Effects from PE1 to SRGH				
		Specific indirect effect			
	PE1 → Economic Deprivation → SRGH	-0.16	0.02	.002	[-0.11; -0.03]
	PE1 → Demand → SRGH	0.04	0.03	.214	[-0.02; 0.10]
	Total indirect effect	-0.03	0.04	.448	[-0.10; 0.05]
<hr/>					
	Effects from PE2 to SRGH				
		Specific indirect effect			
	PE2 → Economic Deprivation → SRGH	-0.07	0.04	.060	[-0.22; -0.00]

The Effect of Precarious Employment on the Health of Domestic Workers

PE2 → Demand → SRGH	0.22	0.06	.008	[0.13; 0.38]
Total indirect effect	0.11	0.07	.210	[-0.04; 0.25]
<hr/>				
Effects from PE3 to SRGH				
		Specific indirect effect		
PE3 → Economic Deprivation → SRGH	-0.1	0.17	.453	[-0.28; 0.12]
PE3 → Demand → SRGH	0.21	0.36	.423	[0.04; 1.34]
Total indirect effect	0.16	0.38	.572	[-0.10; 1.32]

Note. SRGH= Self- Rated General Health, PE= Precarious Employment.

Discussion

The purpose of this study was to examine how economic deprivation and psychosocial stressors at work influence the association of precarious employment conditions on the self-rated general health of domestic workers and to assess differences between European countries. This quantitative study addressed the gap in the mostly qualitative literature. The findings show that, as expected, more precarious employment conditions predicted worse health after controlling for gender, age and country of birth. This may be explained by holding age constant. While being older was related to worse health, nowadays many young people are more likely to work in precarious settings (Cranford et al., 2003; Puig- Barrachina et al., 2013), thus being younger and not older may have a negative effect on health. This is in line with literature that suggests that precarious employment predicts adverse health (Benach et al., 2014; Peckham et al., 2019; Rönnblad et al., 2019).

Oddly, demand and control at work did not interact in predicting self-rated general health, only higher demands did and not control. This is in contrast to the Job-Demand-Control Theory (Karasek, 1979), which posits that high demands and low control together create the variable job strain and negatively affect the health of domestic workers (Anjara et

al., 2017). However, this is in line with other researchers who found that only higher psychological as well as physical demands were associated with worse psychological well-being but that evidence for control is inconclusive (Cheng et al., 2000). Moreover, it is argued that this dimension of lack of job control may not be a valid measure (Escribà-Agür et al., 2004).

Regarding the mediation, our hypothesis is partially supported since economic deprivation and demand mediate the relationship between precarious employment and self-rated general health separately, but not together as they mediate the relationship in opposite directions. Particularly, being more precariously employed is associated with worse health because of higher economic deprivation. This is in line with literature that found having troubles making ends meet partially predicts worse health (Bacci et al., 2017). Surprisingly, workers with more precarious employment conditions were more likely to report better health because having higher demands is associated with less precarity. This finding does not align with literature that suggest more precarity is associated with higher demands and subsequently negatively affect health (Bambra et al., 2014). However, a study by McNamara et al., (2011) found that temporary workers reported lower levels of work intensity and working hours than permanent workers. Since type of contract was one measure of precarity in our study, this may explain the association between being less precariously employed and having higher demands at work.

Lastly, the results showed that those who were least precariously employed were mostly from Belgium (36.3%) compared to the majority of the most precariously employed being from France (47.9%). However, the relationship between precarious employment and self-rated general health was not more strongly mediated by economic deprivation than demand in France and Germany compared to in Sweden, Denmark and Belgium. This does not align with literature which suggests that generous welfare states may buffer against

adverse health effects through financial support (Van der Wel et al., 2015). However, Bambra et al., (2014) found that more generous regimes may in fact not protect against ill health resulting from poor working conditions. Alternatively, the absence of a significant difference between countries could also be explained by the small sample sizes, especially for Sweden and Denmark, despite already pooling data from 2010 and 2015.

Limitations and Future Directions

As always, this study does not come without limitations that may affect the interpretation of the findings. Since we used the EWCS, the measures are self-report and cross-sectional. Thus, conclusions cannot be made about precarious employment conditions causing worse health. Moreover, due to using secondary data, the conceptualization of the variables like demand, control and precarious employment may carry some imprecision. However, the questions were not arbitrarily chosen, instead the commonly used questionnaires to measure the respective concepts, namely Job Content Questionnaire (JCQ) (Karasek & Theorell, 1990) and the systematic review by Kreshpaj et al., (2020), were used as guidance. Since our sample size is relatively small, generalizations about the countries but also in general about the findings must be made with caution. Lastly, we did not differentiate between the domestic workers. This may risk treating domestic workers as one homogenous group while their tasks differ from child-care to elderly-care or cleaning, while working in private households in comparison to firms.

Future research should thus distinguish between different tasks of domestic workers and their working environments to assess which group of workers may be most susceptible to precarious employment conditions and worse health. This can shed light on which group to focus on and also on their needs as some may face more psychosocial stressors at work while others struggle more financially. Since economic deprivation was found to partly explain the relationship of precarious employment and worse health, this may inform policy-makers to act

and raise minimum wages. Moreover, including objective measures and using common scales to measure the underlying concepts may improve the power of the predictions. Finally, studying how individual characteristics like age, gender, race and class intersect in influencing different levels of precarity that domestic workers face can give insight into the most vulnerable groups.

Conclusion

This study provided a micro-and macro- level analysis of the relationship of precarious employment and self-rated general health in domestic workers. The results suggest that having more precarious employment conditions predicts worse self-reported health through having more difficulties making ends meet. Moreover, more precarious employment conditions were also associated with better health through higher demands at work. Analysis by country group found no significant differences between France and Germany vs. Belgium, Denmark and Sweden. These findings give interesting insights into underlying mechanisms of how precarious employment conditions may lead to adverse health outcomes in domestic workers. Hopefully, this raises some awareness and encourages policy-makers to improve the working conditions and increase the wages of domestic workers.

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The Effect of Precarious Employment on the Health of Domestic Workers

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Appendix A

Questions that were included in this study from the EWCS 2015⁸

Q2. a. (Interview: Code gender of respondent in grid below)

b. Starting with yourself, how old are you?

Q4a. Were you and both of your parents born in [PROG: this country]?

1 - Yes

2 – No

7 - Not applicable (spontaneous)

8 – DK/no opinion (spontaneous)

9 – Refusal (spontaneous)

Q5. What is the title of your main paid job? By main paid job, we mean the one where you spend most hours.

4-DIGIT ISCO was used to classify the job.

Q11. What kind of employment contract do you have in your main job?

1 – Contract of unlimited duration

2 – Contract of limited duration

3 – A temporary employment agency contract

4 – An apprenticeship or other training scheme

5 – No contract

⁸Questions that were chosen from the EWCS 2010 and 2015 were identical, if not it was indicated.

The Effect of Precarious Employment on the Health of Domestic Workers

6 – Other (spontaneous)

8 – DK/no opinion (spontaneous)

9 – Refusal (spontaneous)

Q14. Are you working in...?

1 – the private sector

2 – the public sector

3 – a joint private-public organisation or company

4 – the not-for-profit sector or an NGO

5 – other (write in: _____)

8 – DK (spontaneous)

9 – Refusal (spontaneous)

Q27. Besides your main paid job, do you have any other paid job(s)? (IF YES) Is it/are they?

1 – No other paid job

2 - Yes, regular

3 - Yes, occasional

4 - Other (spontaneous)

8 - DK/no opinion (spontaneous)

9 - Refusal (spontaneous)

Q30. Please tell me, using the same scale, does your main paid job involve...?

The Effect of Precarious Employment on the Health of Domestic Workers

	All of the time	Almost all of the time	Around ¼ of the time	Around half of the time	Around ¾ of the time	Almost never	Never	DK	Refusal
A – Tiring or painful positions (TREND)	1	2	3	4	5	6	7	8	9
B – Lifting or moving people (TREND 2005)	1	2	3	4	5	6	7	8	9
C - Carrying or moving heavy loads (TREND)	1	2	3	4	5	6	7	8	9

E - Repetitive hand or arm movements (TREND)	1	2	3	4	5	6	7	8	9
--	---	---	---	---	---	---	---	---	---

G – Handling angry clients, customers, patients, pupils etc. (MODIFIED TREND)	1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---	---

Q49. And, does your job involve...

R	READ OUT –ROTATE – MARK IN COLUMN “R” WHERE YOU START ASKING WITH AN “X” MARK	All of the time	Almost all of the time	Around ¼ of the time	Around half of the time	Around ¾ of the time	Almost never	Never	DK	Refusal
A-	working at very high speed	1	2	3	4	5	6	7	8	9
B-	working to tight deadlines	1	2	3	4	5	6	7	8	9

Q54. Are you able to choose or change...

	Yes	No	DK	Refusal
A – your order of tasks	1	2	8	9
B – your methods of work	1	2	8	9
C – your speed or rate of work	1	2	8	9

Q71. Does the following exist at your company or organisation...?

A - Trade union, works council or a similar committee representing employees?

1 – Yes

2 – No

8 – Don't Know

9 – Refusal

The Effect of Precarious Employment on the Health of Domestic Workers

Q75. How is your health in general? Would you say it is ...

1 – Very good

2 – Good

3 – Fair

4 – Bad

5 – Very bad

8 - DK/no opinion (spontaneous)

9 - Refusal (spontaneous)

Q104. Please can you tell us how much are your NET monthly earnings from your main paid job? Please refer to your average earnings in recent months. If you don't know the exact figure, please give an estimate.

Net monthly earnings from the main job in national currency:

88888888 - DK (spontaneous)

99999999 - Refusal (spontaneous)

--	--	--	--	--	--	--	--	--	--

Q100. A household may have different sources of income and more than one household member may contribute to it. Thinking of your household's total monthly income, is your household able to make ends meet...?

1 - Very easily

2 - Easily

3 - Fairly easily

4 - With some difficulty

5 - With difficulty

The Effect of Precarious Employment on the Health of Domestic Workers

6 - With great difficulty

8 - DK/no opinion (spontaneous)

9 – Refusal (spontaneous)

Q105. Perhaps you can provide the approximate range instead. What letter best matches your total net earnings from your main job (SHOW CARD Q105)? Use the part of the show card that you know best: weekly, monthly or annual earnings

[EWCS 2015]

	Code	WEEKLY	MONTHLY	YEARLY
1 = D	D			
2 = B	B			
3 = I	I			
4 = O	O			
5 = T	T			
6 = G	G			
7 = P	P			
8 = A	A			
9 = F	F			
10 = E	E			
11 = Q	Q			
12 = H	H			
	22	(Refusal)		
	23	(Don't know)		

[Country specific showcards were used]*

The Effect of Precarious Employment on the Health of Domestic Workers

[EWCS 2010]

	Code	WEEKLY	MONTHLY	YEARLY
1 = D	D	Less than €25	Less than €100	Less than €1.200
2 = B	B	€ 26 to € 35	€101 to €150	€ 1.201 to €1.800
3 = I	I	€ 36 to € 50	€ 151 to €200	€ 1.801 to €2.400
4 = O	O	€ 51 to € 60	€ 201 to €250	€ 2.401 to €3.000
5 = T	T	€ 61 to €75	€ 251 to €300	€ 3.001 to €3.600
6 = G	G	€ 76 to €100	€ 301 to €400	€ 3.601 to €4.800
7 = P	P	€ 101 to €125	€ 401 to €500	€ 4.801 to €6.000
8 = A	A	€ 126 to €150	€ 501 to €600	€ 6.001 to €7.200
9 = F	F	€ 151 to €185	€ 601 to €750	€ 7.201 to €9.000
10= E	E	€ 186 to €250	€ 751 to € 1.000	€ 9.001 to € 12.000
11= Q	Q	€ 251 to €300	€ 1.001 to € 1.250	€ 12.001 to € 15.000
12= H	H	€ 301 to €350	€ 1.251 to € 1.500	€ 15.001 to € 18.000
13= C	C	€ 351 to €425	€ 1.501 to € 1.750	€ 18.001 to € 21.000
14= L	L	€ 426 to €500	€ 1.751 to € 2.000	€ 21.001 to € 24.000
15= N	N	€ 501 to € 550	€ 2.001 to €2.250	€ 24.001 to € 27.000
16= R	R	€ 551 to € 600	€ 2.251 to €2.500	€ 27.001 to € 30.000
17= M	M	€ 601 to € 650	€ 2.501 to €2.750	€ 30.001 to € 33.000
18= S	S	€ 651 to € 750	€ 2.751 to € 3.000	€ 33.001 to € 36.000
19=K	K	€ 751 to € 850	€ 3.001 to € 3.500	€ 36.001 to € 42.000
20=U	U	€ 851 to € 1.000	€ 3.501 to € 4.000	€ 42.001 to € 48.000
21=V	V	€ 1.001 or more	€ 4.001 or more	€ 48.001 or more
	22	(Refusal)		
	23	(Don't know)		

Q106. What is the highest level of education or training that you have successfully completed?

[Note; additional explanation of ISCED classification and correspondence to local qualifications were provided in each country]

[EWCS 2015]

01 - Early childhood education (ISCED 0)

02 - Primary education (ISCED 1)

03 - Lower secondary education (ISCED 2)

04 - Upper secondary education (ISCED 3)

05 - Post-secondary non-tertiary education (ISCED 4)

The Effect of Precarious Employment on the Health of Domestic Workers

06 – Short-cycle tertiary education (ISCED 5)

07 – Bachelor or equivalent (ISCED 5)

08 – Master or equivalent (ISCED 5)

09 – Doctorate or equivalent (ISCED 6)

88 - Don't know (spontaneous)

99 - Refusal (spontaneous)

[EWCS 2010]

[Note: LFS question; additional explanation of ISCED classification and correspondence to local qualifications will be provided in each country]

1 - No education

2 - Primary education (ISCED 1)

3 - Lower secondary education (ISCED 2)

4 - Upper secondary education (ISCED 3)

5 - Post-secondary including pre-vocational or vocational education but not tertiary (ISCED 4)

6 - Tertiary education – first level (ISCED 5)

7 - Tertiary education – advanced level (ISCED 6)

9 - Refusal (spontaneous)

Appendix B

Assumption Testing for Conducting a Probit Regression

Table 5

Cramer's V's of the correlations between the DV's and IV's.

Variables	1.	2.	3.	4.	5.
1. Self-rated general health	-				
2. Precarious employment	.06*	-			
3. Economic deprivation	.18****	.13****	-		
4. Demand	.20****	.16****	.15****	-	
5. Control	.08****	.05	.14****	.10****	-

Note. * $p < .05$, ** $p < .01$, **** $p < .001$

Table 6

Test of Parallel Lines^a with Educational Levels.

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	2488.31			
General	2456.49	31.82	19	.033

Note. The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

a. Link function: Probit.

Table 7

Test of Parallel Lines^a without Educational Levels.

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	2341.49			
General	2320.35	21.14	13	.070

The Effect of Precarious Employment on the Health of Domestic Workers

Note. The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

a. Link function: Probit.

Appendix C

Testing for an interaction of demand and control

Table 8 shows that surprisingly demand and control do not interact in predicting self-rated general health, $b = 0.04$, $SE = 0.18$, $p = .829$, controlling for precarious employment, economic deprivation, age, gender, and country of birth. This suggests that demands at work do not influence health differently based on feelings of control. However, if assessing demands at work separately, the results show that lower demands increased the likelihood of reporting better general health, $b = 0.39$, $SE = 0.11$, $p < .001$, while feelings of control did not have an effect on health $p = .29$, holding all other variables constant.

Table 8

*Ordinal probit regression with interaction of demand*control, controlling for precarious employment, economic deprivation, age, gender and country of birth.*

	Estimate	Std. Error	df	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
low demand	.387	.105	1	.000	.181	.592
low control	-.172	.162	1	.290	-.490	.146

The Effect of Precarious Employment on the Health of Domestic Workers

not born here	-.065	.070	1	.354	-.203	.073
male	.066	.087	1	.450	-.105	.237
economic deprivation =1	1.015	.164	1	.000	.694	1.335
economic deprivation =2	.869	.128	1	.000	.618	1.121
economic deprivation =3	.794	.124	1	.000	.552	1.036
economic deprivation =4	.406	.119	1	.001	.172	.640
economic deprivation =5	.199	.132	1	.132	-.060	.458
PE = 0	.113	.130	1	.383	-.141	.367
PE = 1	.077	.129	1	.549	-.175	.329
PE = 2	.150	.137	1	.272	-.118	.418
age	-.021	.002	1	.000	-.026	-.016
low demand*low control	.038	.177	1	.829	-.309	.386

Note. PE= precarious employment, reference groups are: good or very good health, economic deprivation = 6, PE = 3, high demand*low control was redundant to test.

Appendix D

Outlier Analysis

There were no outliers for age (Figure 3) and no outliers from income (Figure 4) had to be removed since they may represent the real world and were in any case transformed into a binary variable (income at risk of poverty) for the analysis.

Figure 3

Boxplot of Age.

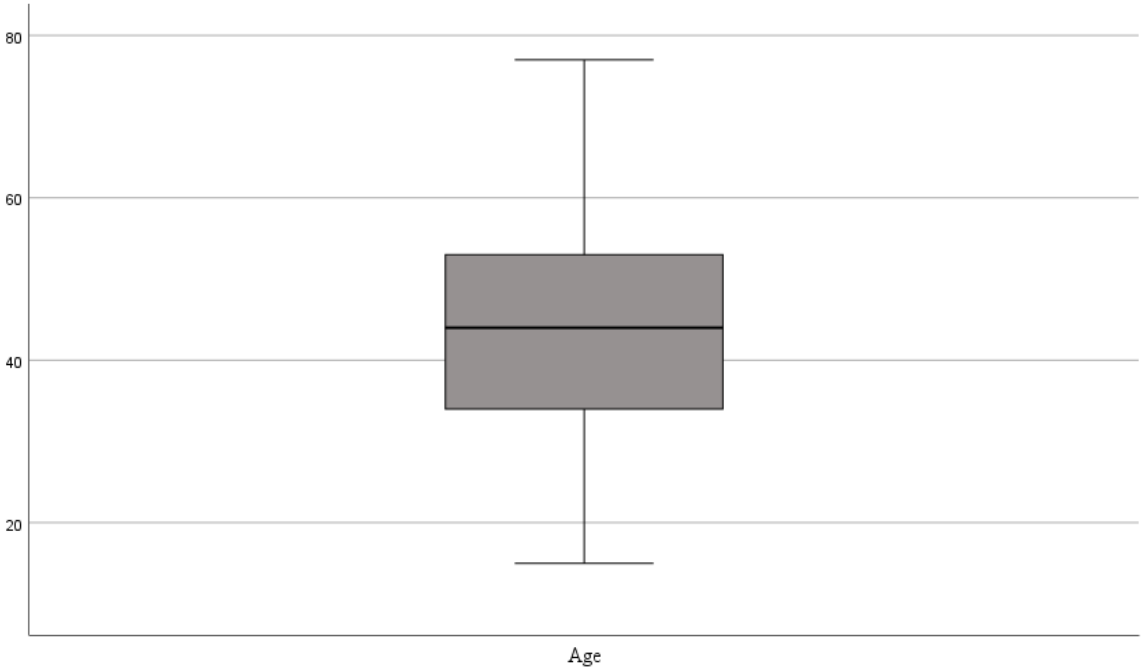
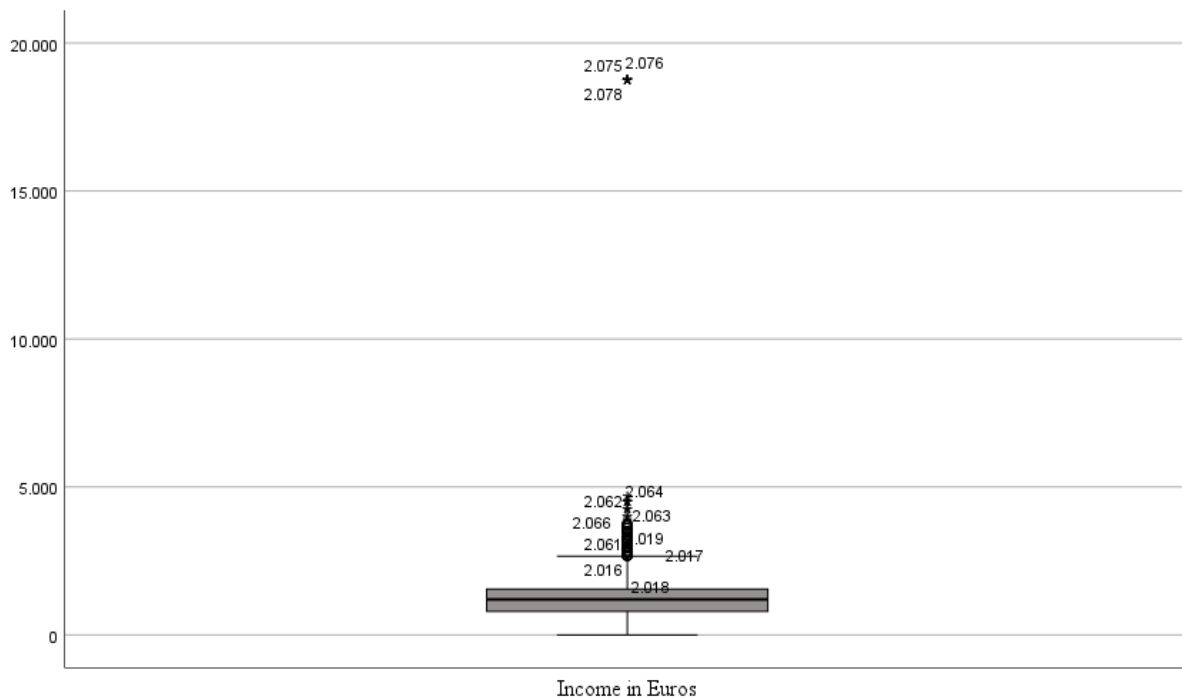


Figure 4

Boxplot of income in Euros.



Missing Values Analysis

Table 9 shows that of notice were the missing values on the variables trade union (14.8%), type of contract (9.3%) and income (9.3%). However, this is quite common and may be explained by the sensitive nature of those questions. Moreover, since all three variables were used to indicate the variable precarious employment, the cases were only deleted if all three variables had missing values, reducing the missing values to 1.7% and resulting in $N=2042$. Thus, for all relevant variables, the missing values were $< 2\%$ in the end which justifies deleting them listwise for the chi-square test and probit regression. In Mplus, missing values of the dependent variable are estimated through the full information maximum likelihood method and missing values on the independent variables were listwise excluded.

Table 9

Missing Values Analysis for all relevant variables.

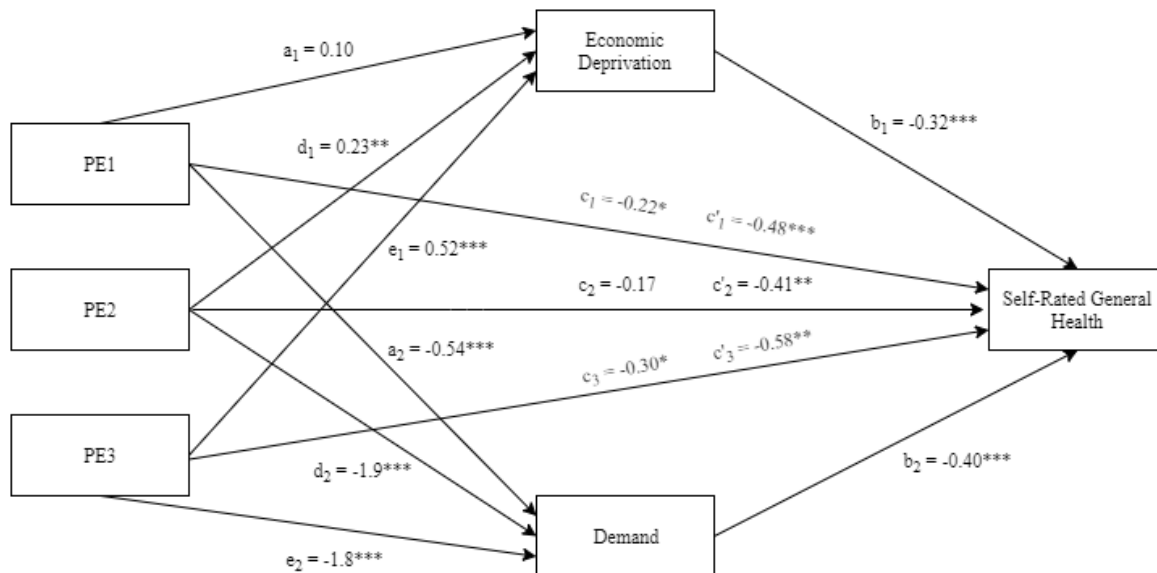
Variables	N	Missing		No. of Extremes ^a	
		Count	Percent	Low	High
Age	2073	5	.2	0	0
Economic Deprivation	2064	14	.7	0	0
Education	2078	0	.0	23	304
Contract	1884	194	9.3	.	.
Trade Union	1770	308	14.8	0	0
Precarious Employment	2042	36	1.7	0	119
Demand	2078	0	.0	.	.
Control	2073	5	.2	0	0
Self-rated general health	2076	2	.1	0	0
Gender	2078	0	.0	.	.
Country of birth	2073	5	.2	.	.
Income	1885	193	9.3	0	66

Note. a. Number of cases outside the range (Q1 – 1.5*IQR, Q3 + 1.5*IQR).

Appendix E

Figure 5

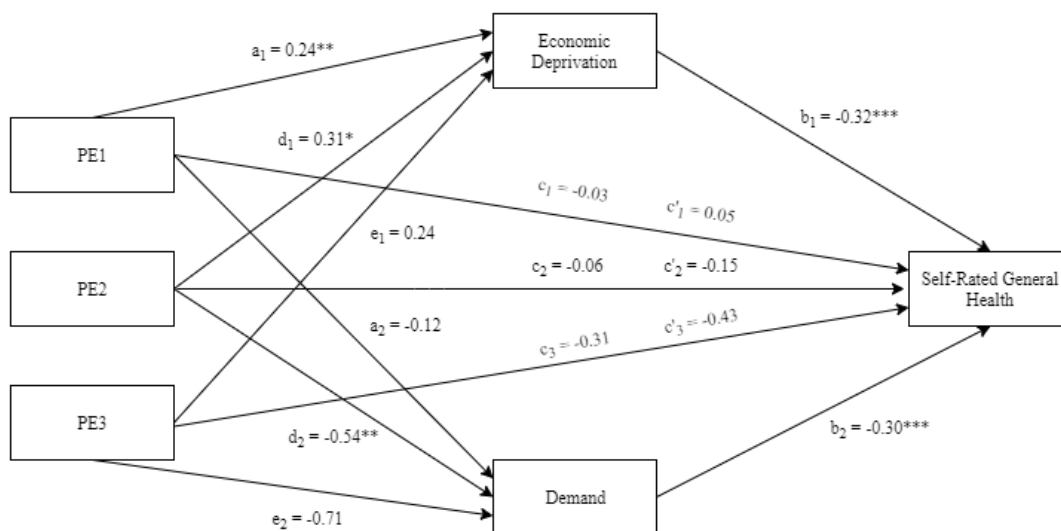
Total and Indirect Effects of Precarious Employment Levels on Self-Rated General Health Through Economic Deprivation and Demand for Germany and France.



Note. $*p < .05$, $**p < .01$, $***p < .001$

Figure 6

Total and Indirect Effects of Precarious Employment Levels on Self-Rated General Health Through Economic Deprivation and Demand for Sweden, Denmark and Belgium.



Note. $*p < .05$, $**p < .01$, $***p < .001$

Appendix F

SPSS Syntax

```
* Encoding: UTF-8.

*Filter out DATA SET 2015

*include only countries Belgium, Sweden, Denmark, France and Germany

DATASET ACTIVATE ewcs6_2015_.sav.

FILTER OFF.

USE ALL.

SELECT IF (Country = 10 | Country = 11 | Country = 2 | Country = 27 |
Country = 7).

EXECUTE.

*include only personal care workers and cleaners and helpers

FILTER OFF.

USE ALL.

SELECT IF (isco_08_2 = 53 | isco_08_2 = 91).

EXECUTE.

*compute ID number for each case so that files can be merged

DATASET ACTIVATE ewcs6_2015_.sav.

COMPUTE ID=$CASENUM.

EXECUTE.

*recode ISCED11 scale into ISCED97 to merge with data set 2010

DATASET ACTIVATE ewcs6_2015_.sav.

RECODE ISCED (1=0) (2=1) (3=2) (4=3) (5= 4) (9=6) (88=88) (99=99) (6 thru
8=5) INTO ISCED97.

VARIABLE LABELS ISCED97 'ISCED97'.
```


The Effect of Precarious Employment on the Health of Domestic Workers

EXECUTE.

*create year variable to distinguish both data files by year

RECODE Date (ELSE=2015) INTO Year.

VARIABLE LABELS Year 'Year'.

EXECUTE.

*Filter out DATASET 2010

*include only countries Belgium, Sweden, Denmark, France and Germany

DATASET ACTIVATE ewcs_2010_version_ukda_6_dec_2011.sav.

FILTER OFF.

USE ALL.

SELECT IF (countid = 9 | countid = 5 | countid = 1 | countid = 26 | countid = 4).

EXECUTE.

*include only personal care workers and cleaners and helpers

FILTER OFF.

USE ALL.

SELECT IF (isco_08_ = 53 | isco_08_ = 91).

EXECUTE.

*create year variable to distinguish both data files by year

DATASET ACTIVATE ewcs_2010_version_ukda_6_dec_2011.sav.

RECODE p1_1 (ELSE=2010) INTO Year.

VARIABLE LABELS Year 'Year'.

EXECUTE.

MERGED DATA FILE

*recode different country codes of 2010 and 2015 into same code for the same countries

The Effect of Precarious Employment on the Health of Domestic Workers

```
RECODE Country1 (9=9) (5=5) (1=1) (26=26) (4=4) (10=9) (11=5) (2=1) (27=26)
(7=4) INTO Country.
```

```
VARIABLE LABELS Country 'Country'.
```

```
EXECUTE.
```

*create variables that are important for the Precarious Employment variable

*manually calculated average of each income range of 2010 and 2015

*then added those values manually to the cases that only reported a range -
> to create one income variable instead of having income and income range

*the cases from each country in each year that fall below the income at
poverty threshold (from Eurostats) will be coded as 1

```
COMPUTE incomeatrisk=((Country = 1 & Year = 2010 & income < 867) | (Country
= 1 & Year = 2015 &
```

```
income < 996) | (Country = 4 & Year = 2010 & income < 898) | (Country =
4 & Year = 2015 & income <
```

```
1019) | (Country = 5 & Year = 2010 & income < 879) | (Country = 5 &
Year = 2015 & income < 1018) |
```

```
(Country = 9 & Year = 2010 & income < 889) | (Country = 9 & Year = 2015
& income < 994) | (Country
```

```
= 26 & Year = 2010 & income < 878) | (Country = 26 & Year = 2015 &
income < 1008)).
```

```
EXECUTE.
```

*dummy coded 'type of contract' and 'trade union'

```
DATASET ACTIVATE thesisdataset.
```

```
RECODE Q11 (1=0) (6=SYSMIS) (2 thru 5=1) (8 thru 9=SYSMIS) INTO ContractPE.
```

```
VARIABLE LABELS ContractPE 'ContractPE'.
```

```
EXECUTE.
```

```
RECODE Q71a (1=0) (2=1) (8 thru 9=SYSMIS) INTO TradeUnPE.
```

The Effect of Precarious Employment on the Health of Domestic Workers

```
VARIABLE LABELS TradeUnPE 'TradeUnPE'.
```

```
EXECUTE.
```

*Descriptives (check for missing values and get overall picture)

```
DATASET ACTIVATE thesisdataset.
```

```
FREQUENCIES VARIABLES= TradeUnPE ContractPE incomeatrisk Q75 Q2a Q4a Q54a  
Q54b Q54c Q30a Q30b Q30c Q30e Q30g Q49a Q49b Q11 Q71a
```

```
Q2b EconDep
```

```
/STATISTICS=MEAN MEDIAN
```

```
/ORDER=ANALYSIS.
```

*don't do anything with missing values yet since I still need to create the variable Precarious Employment and there I will only include cases that have missing values

on all three variables trade union, contract and income. thus, the number of missing values will automatically be reduced

*Identifying outliers

```
EXAMINE VARIABLES=Q2b income
```

```
/PLOT BOXPLOT STEMLEAF
```

```
/COMPARE GROUPS
```

```
/STATISTICS DESCRIPTIVES EXTREME
```

```
/CINTERVAL 95
```

```
/MISSING LISTWISE
```

```
/NOTOTAL.
```

*there are some outliers for income, however since I only look at income at risk of poverty and not at exact amounts of income, the outliers don't pose a big problem. also,

they may reflect the real world, so deleting them may not be justified

*create PE and identify missing values

The Effect of Precarious Employment on the Health of Domestic Workers

*Create new variable holding number of missings.

```
compute PEMiss = nmiss(ContractPE TradeUnPE incomeatrisk).
```

*Apply variable label.

```
variable labels PEMiss 'Number of missings on ContractPE TradeUnPE  
incomeatrisk'.
```

*Check frequencies.

```
frequencies PEMiss.
```

*Counting PE variables that have <3 missing values

```
DO IF (PEMiss < 3).
```

```
COUNT PECCount=ContractPE TradeUnPE incomeatrisk(1).
```

```
VARIABLE LABELS PECCount 'PECCount'.
```

```
END IF.
```

```
EXECUTE.
```

```
FREQUENCIES VARIABLES=ContractPE TradeUnPE incomeatrisk PECCount
```

```
 /ORDER=ANALYSIS.
```

*reverse coded SRGH so that 1= very bad health, 5= very good health

```
RECODE Q75 (1=5) (2=4) (3=3) (4=2) (5=1) (8=8) (9=9) INTO SRGH5.
```

```
VARIABLE LABELS SRGH 'SRGH5'.
```

```
EXECUTE.
```

*recode SRGH into only 3 levels

```
RECODE SRGH5 (3=2) (8=8) (9=9) (1 thru 2=1) (4 thru 5=3) INTO SRGH.
```

```
VARIABLE LABELS SRGH 'SRGH'.
```

```
EXECUTE.
```

*code each Demand question as either 1= high demand or 0= low demand, the answers 1-4 count as high demand and 5-7= low demand

```
RECODE Q30a (8=8) (9=9) (1 thru 4=1) (5 thru 7=0) INTO Q30aDemand.
```

The Effect of Precarious Employment on the Health of Domestic Workers

```
VARIABLE LABELS Q30aDemand 'Q30aDemand'.
```

```
EXECUTE.
```

```
RECODE Q30b (8=8) (9=9) (1 thru 4=1) (5 thru 7=0) INTO Q30bDemand.
```

```
VARIABLE LABELS Q30bDemand 'Q30bDemand'.
```

```
EXECUTE.
```

```
RECODE Q30c (8=8) (9=9) (1 thru 4=1) (5 thru 7=0) INTO Q30cDemand.
```

```
VARIABLE LABELS Q30cDemand 'Q30cDemand'.
```

```
EXECUTE.
```

```
RECODE Q30e (8=8) (9=9) (1 thru 4=1) (5 thru 7=0) INTO Q30eDemand.
```

```
VARIABLE LABELS Q30eDemand 'Q30eDemand'.
```

```
EXECUTE.
```

```
RECODE Q30g (8=8) (9=9) (1 thru 4=1) (5 thru 7=0) INTO Q30gDemand.
```

```
VARIABLE LABELS Q30gDemand 'Q30gDemand'.
```

```
EXECUTE.
```

```
RECODE Q49a (8=8) (9=9) (1 thru 4=1) (5 thru 7=0) INTO Q49aDemand.
```

```
VARIABLE LABELS Q49aDemand 'Q49aDemand'.
```

```
EXECUTE.
```

```
RECODE Q49b (8=8) (9=9) (1 thru 4=1) (5 thru 7=0) INTO Q49bDemand.
```

```
VARIABLE LABELS Q49bDemand 'Q49bDemand'.
```

```
EXECUTE.
```

```
*Create new variable counting missing values
```

```
compute demandmiss = nmiss(Q30aDemand to Q49bDemand).
```

```
*Apply variable label.
```

```
variable labels demandmiss 'Number of missings on Q30aDemand to  
Q49bDemand'.
```

The Effect of Precarious Employment on the Health of Domestic Workers

*Check frequencies.

frequencies demandmiss.

*count how many answered with high demand on the 7 questions (score 0-7)

DO IF (demandmiss < 7).

COUNT DemandCount=DemandCount=Q30aDemand Q30bDemand Q30cDemand Q30eDemand
Q30gDemand Q49aDemand Q49bDemand(1).

VARIABLE LABELS DemandCount 'DemandCount'.

END IF.

EXECUTE.

*compute overall demand at work, 1=high demand when the score is >= 4

RECODE DemandCount (4 through 7=1) (MISSING=SYSMIS) (ELSE=0) INTO Demand.

VARIABLE LABELS Demand 'Demand'.

EXECUTE.

*create control variable and identify missing values

*Create new variable holding number of missings.

compute ControlMiss = nmiss(Q54a, Q54b, Q54c).

*Apply variable label.

variable labels ControlMiss 'Number of missings on Q54a, Q54b, Q54c'.

*Check frequencies.

frequencies ControlMiss.

*count how many answered with high control on the 3 questions (score 0-3)

DO IF (ControlMiss < 3).

COUNT ControlCount=Q54a Q54b Q54c(1).

VARIABLE LABELS ControlCount 'ControlCount'.

END IF.

The Effect of Precarious Employment on the Health of Domestic Workers

EXECUTE.

*compute overall control at work, 1=high control when the score is ≥ 2

RECODE ControlCount (2=1) (3=1) (MISSING=SYSMIS) (ELSE=0) INTO Control.

VARIABLE LABELS Control 'Control'.

EXECUTE.

*Analyse missing values on all relevant variables

MVA VARIABLES=Q2b EconDep ISCED97 ContractPE TradeUnPE PECCount Demand
Control SRGH Gender BornHere

income

/EM(TOLERANCE=0.001 CONVERGENCE=0.0001 ITERATIONS=25).

*Dummy coded predictor variables

*Education (Reference=Edu3) and Precarious Employment (Reference=PE0)

RECODE ISCED97 (9=SYSMIS) (88=SYSMIS) (0=1) (ELSE=0) INTO Edu0.

VARIABLE LABELS Edu0 'Edu0'.

EXECUTE.

RECODE ISCED97 (9=SYSMIS) (88=SYSMIS) (1=1) (ELSE=0) INTO Edu1.

VARIABLE LABELS Edu1 'Edu1'.

EXECUTE.

RECODE ISCED97 (9=SYSMIS) (88=SYSMIS) (2=1) (ELSE=0) INTO Edu2.

VARIABLE LABELS Edu2 'Edu2'.

EXECUTE.

RECODE ISCED97 (9=SYSMIS) (88=SYSMIS) (3=1) (ELSE=0) INTO Edu3.

VARIABLE LABELS Edu3 'Edu3'.

EXECUTE.

RECODE ISCED97 (9=SYSMIS) (88=SYSMIS) (4=1) (ELSE=0) INTO Edu4.

The Effect of Precarious Employment on the Health of Domestic Workers

```
VARIABLE LABELS Edu4 'Edu4'.
```

```
EXECUTE.
```

```
*EDU5&6 were put into one group
```

```
RECODE ISCED97 (9=SYSMIS) (88=SYSMIS) (5=1) (6=1) (ELSE=0) INTO Edu5.
```

```
VARIABLE LABELS Edu5 'Edu5'.
```

```
EXECUTE.
```

```
RECODE PECCount (MISSING=SYSMIS) (1=1) (ELSE=0) INTO PE1.
```

```
VARIABLE LABELS PE1 'PE1'.
```

```
EXECUTE.
```

```
RECODE PECCount (MISSING=SYSMIS) (2=1) (ELSE=0) INTO PE2.
```

```
VARIABLE LABELS PE2 'PE2'.
```

```
EXECUTE.
```

```
RECODE PECCount (MISSING=SYSMIS) (3=1) (ELSE=0) INTO PE3.
```

```
VARIABLE LABELS PE3 'PE3'.
```

```
EXECUTE.
```

```
RECODE Q2a (1=0) (2=1) (9=SYSMIS) INTO Gender.
```

```
VARIABLE LABELS Gender 'Gender'.
```

```
EXECUTE.
```

```
RECODE Q4a (9=SYSMIS) (1=1) (2=0) (8=SYSMIS) INTO BornHere.
```

```
VARIABLE LABELS BornHere 'BornHere'.
```

```
EXECUTE.
```

```
*reduce Education categories to 4 for the descriptive table (to make it  
more concise)
```

```
RECODE ISCED97 (9=SYSMIS) (MISSING=SYSMIS) (4=3) (0 thru 1=1) (5 thru 6=4)  
(2 thru 3=2) INTO Edu.
```

```
VARIABLE LABELS Edu 'Edu'.
```


The Effect of Precarious Employment on the Health of Domestic Workers

EXECUTE.

*frequencies by Precarious Employment

CROSSTABS

```
/TABLES=Q2a BornHere Edu Q27 Q14 EconDep isco_08_2 Country Demand Control  
SRGH BY PECount
```

```
/FORMAT=AVALUE TABLES
```

```
/CELLS=COUNT ROW COLUMN TOTAL
```

```
/COUNT ROUND CELL.
```

*Chi-square tests

CROSSTABS

```
/TABLES=PECount BY EconDep
```

```
/FORMAT=AVALUE TABLES
```

```
/STATISTICS=CHISQ PHI
```

```
/CELLS=COUNT EXPECTED
```

```
/COUNT ROUND CELL.
```

CROSSTABS

```
/TABLES=PECount BY Demand
```

```
/FORMAT=AVALUE TABLES
```

```
/STATISTICS=CHISQ PHI
```

```
/CELLS=COUNT EXPECTED
```

```
/COUNT ROUND CELL.
```

CROSSTABS

```
/TABLES=PECount BY SRGH
```

```
/FORMAT=AVALUE TABLES
```

```
/STATISTICS=CHISQ PHI
```

The Effect of Precarious Employment on the Health of Domestic Workers

/CELLS=COUNT EXPECTED

/COUNT ROUND CELL.

CROSSTABS

/TABLES=PECount BY Control

/FORMAT=AVALUE TABLES

/STATISTICS=CHISQ PHI

/CELLS=COUNT EXPECTED

/COUNT ROUND CELL.

CROSSTABS

/TABLES=SRGH BY EconDep

/FORMAT=AVALUE TABLES

/STATISTICS=PHI

/CELLS=COUNT

/COUNT ROUND CELL.

CROSSTABS

/TABLES=SRGH BY Demand

/FORMAT=AVALUE TABLES

/STATISTICS=PHI

/CELLS=COUNT

/COUNT ROUND CELL.

CROSSTABS

/TABLES=SRGH BY Control

/FORMAT=AVALUE TABLES

/STATISTICS=PHI

/CELLS=COUNT

The Effect of Precarious Employment on the Health of Domestic Workers

```
/COUNT ROUND CELL.
```

```
CROSSTABS
```

```
/TABLES=Demand BY EconDep
```

```
/FORMAT=AVALUE TABLES
```

```
/STATISTICS=PHI
```

```
/CELLS=COUNT
```

```
/COUNT ROUND CELL.
```

```
CROSSTABS
```

```
/TABLES=Control BY EconDep
```

```
/FORMAT=AVALUE TABLES
```

```
/STATISTICS=PHI
```

```
/CELLS=COUNT
```

```
/COUNT ROUND CELL.
```

```
CROSSTABS
```

```
/TABLES=Demand BY Control
```

```
/FORMAT=AVALUE TABLES
```

```
/STATISTICS=PHI
```

```
/CELLS=COUNT
```

```
/COUNT ROUND CELL.
```

```
*test of parallel lines with education
```

```
PLUM SRGH BY EconDep PCount WITH Q2b Gender BornHere Control Demand Edu0  
Edu1 Edu2 Edu3 Edu4 Edu5
```

```
/CRITERIA=CIN(95) DELTA(0) LCONVERGE(0) MXITER(100) MXSTEP(5)  
PCONVERGE(1.0E-6) SINGULAR(1.0E-8)
```

```
/LINK=PROBIT
```

```
/PRINT=FIT PARAMETER SUMMARY TPARALLEL.
```

The Effect of Precarious Employment on the Health of Domestic Workers

*test of parallel lines without education

PLUM SRGH BY PECOUNT EconDep Demand Control Gender BornHere WITH Q2b

```
/CRITERIA=CIN(95) DELTA(0) LCONVERGE(0) MXITER(100) MXSTEP(5)  
PCONVERGE(1.0E-6) SINGULAR(1.0E-8)
```

```
/LINK=PROBIT
```

```
/PRINT=FIT PARAMETER SUMMARY TPARALLEL.
```

*ordinal probit regression with interaction of demand*control

PLUM SRGH BY Demand Control BornHere Gender EconDep PECOUNT WITH Q2b

```
/CRITERIA=CIN(95) DELTA(0) LCONVERGE(0) MXITER(100) MXSTEP(5)  
PCONVERGE(1.0E-6) SINGULAR(1.0E-8)
```

```
/LINK=PROBIT
```

```
/LOCATION=Demand Control BornHere Gender EconDep PECOUNT Q2b  
Control*Demand
```

```
/PRINT=FIT PARAMETER SUMMARY.
```

*prepare SPSS data file for transfer to mplus

*manually delete the variables that are not needed

*identify the missing values so that mplus can recognize them

*export the file to a dat file for mplus

```
SAVE TRANSLATE OUTFILE='C:\Users\phamha\OneDrive - Trimbos-  
Instituut\Documents\Thesis\theone.dat'
```

```
/TYPE=TAB
```

```
/ENCODING='UTF8'
```

```
/MAP
```

```
/REPLACE
```

```
/CELLS=VALUES.
```

*analyse country differences

The Effect of Precarious Employment on the Health of Domestic Workers

*make a copy of the data file

*in one data file, include only countries = Sweden, Denmark and Belgium and delete other cases

FILTER OFF.

USE ALL.

SELECT IF (Country = 1 | Country = 26 | Country = 4).

EXECUTE.

RECODE Age workAffHealth EconDep ISCED97 PE Demand Control Gender BornHere
Edu0 Edu1 Edu2 Edu4 Edu5

ObjHealth SRGH Country PE1 PE2 PE3 (MISSING = 999) (SYSMIS =999).

EXECUTE.

MISSING VALUES Age workAffHealth EconDep ISCED97 PE Demand Control Gender
BornHere Edu0 Edu1 Edu2 Edu4 Edu5

ObjHealth SRGH Country PE1 PE2 PE3 (999).

*save file in dat format for mplus

SAVE TRANSLATE OUTFILE='C:\Users\phamha\OneDrive - Trimbos-
Instituut\Documents\Thesis\SEDENBE.dat'

/TYPE=TAB

/ENCODING='UTF8'

/MAP

/REPLACE

/CELLS=VALUES.

*in second data file, include only countries = France and Germany and delete other cases

FILTER OFF.

USE ALL.

The Effect of Precarious Employment on the Health of Domestic Workers

```
SELECT IF (Country = 5 | Country = 9).
```

```
EXECUTE.
```

```
RECODE Age workAffHealth EconDep ISCED97 PE Demand Control Gender BornHere  
Edu0 Edu1 Edu2 Edu4 Edu5
```

```
ObjHealth SRGH Country PE1 PE2 PE3 (MISSING = 999) (SYSMIS =999).
```

```
EXECUTE.
```

```
MISSING VALUES Age workAffHealth EconDep ISCED97 PE Demand Control Gender  
BornHere Edu0 Edu1 Edu2 Edu4 Edu5
```

```
ObjHealth SRGH Country PE1 PE2 PE3 (999).
```

```
*save file in dat format for mplus
```

```
SAVE TRANSLATE OUTFILE='C:\Users\phamha\OneDrive - Trimbo-  
Instituut\Documents\Thesis\FRAGER.dat'
```

```
/TYPE=TAB
```

```
/ENCODING='UTF8'
```

```
/MAP
```

```
/REPLACE
```

```
/CELLS=VALUES.
```

```
*then, do same mediation analysis for each country group in mplus
```

Mplus Syntax

Model 1 Regression of Precarious Employment on Self-Rated General Health

```
TITLE: Ordered probit regression
```

```
DATA: FILE IS "C:\Users\phamha\OneDrive -  
Trimbo-Instituut\Documents\Thesis\  
mplusthesis.dat";
```

```
VARIABLE: NAMES ARE Q2b waHealth
```

The Effect of Precarious Employment on the Health of Domestic Workers

Obhealth EconDep ISCED97

PECount Demand Control

SRGH Gender BornHere Edu0 Edu1 Edu2

Edu4 Edu5 Country EcoDep PE1 PE2

PE3 Edu;

USEVARIABLES ARE SRGH PE1 PE2 PE3;

CATEGORICAL ARE SRGH;

MISSING ARE ALL (999);

MODEL:

SRGH ON PE1 PE2 PE3;

Model 2 Regression of Precarious Employment on Self-Rated General Health, controlling for Age, Gender and Country of Birth.

TITLE: Ordered probit regression

DATA: FILE IS "C:\Users\phamha\
OneDrive - Trimbos-Instituut\Thesis
\Final versions\newest.dat";

VARIABLE: NAMES ARE Q2b waHealth Obhealth

EconDep ISCED97 PECount Demand Control

SRGH Gender BornHere Edu0 Edu1 Edu2

Edu4 Edu5 Country EcoDep PE1 PE2 PE3 Edu

EconDep2 EconDep3 EconDep4 EconDep5

EconDep6;

USEVARIABLES ARE SRGH PE1 PE2 PE3 Q2b

Gender BornHere;

CATEGORICAL IS SRGH;

The Effect of Precarious Employment on the Health of Domestic Workers

MISSING ARE ALL (999);

MODEL:

SRGH ON PE1 PE2 PE3 Q2b

Gender BornHere;

Mediation, including Model 3, Regression of Precarious Employment on Self-Rated General Health, controlling for Age, Gender, Country of Birth.

DATA: FILE IS "C:\Users\phamha\

OneDrive - Trimboos-Instituut\Thesis

\Final versions\mplusthesis.dat";

VARIABLE: NAMES ARE Q2b waHealth obHealth

EconDep ISCED97 PECOUNT Demand Control

SRGH Gender BornHere Edu0 Edu1 Edu2

Edu4 Edu5 Country EconDep PE1 PE2 PE3 Edu

EconDep2 EconDep3 EconDep4 EconDep5

EconDep6;

USEVARIABLES ARE SRGH PE1 PE2 PE3 Q2b

Gender BornHere EconDep

Demand Control;

CATEGORICAL IS SRGH EconDep Demand;

MISSING ARE ALL (999);

MODEL:

SRGH ON PE1 PE2 PE3 Q2b Gender BornHere

EconDep Demand Control;

EconDep Demand ON PE1 PE2 PE3;

MODEL INDIRECT: SRGH IND PE1;

The Effect of Precarious Employment on the Health of Domestic Workers

SRGH IND PE2;

SRGH IND PE3;

ANALYSIS: Bootstrap=5000;

OUTPUT: CINTERVAL (BOOTSTRAP);

Mediation for France and Germany

DATA: FILE IS "C:\Users\phamha\

OneDrive - Trimbos-Instituut\

Thesis\Final versions\FRAGER.dat";

VARIABLE: NAMES ARE Age workAffHealth

EconDep ISCED97 PE Demand Control Gender

BornHere Edu0 Edu1 Edu2 Edu4 Edu5

ObjHealth SRGH Country PE1 PE2 PE3;

USEVARIABLES ARE SRGH PE1 PE2 PE3 Age

Gender BornHere EconDep

Demand Control;

CATEGORICAL IS SRGH EconDep Demand;

MISSING ARE ALL (999);

MODEL:

SRGH ON PE1 PE2 PE3 Age Gender BornHere

EconDep Demand Control;

EconDep Demand ON PE1 PE2 PE3;

MODEL INDIRECT: SRGH IND PE1;

SRGH IND PE2;

SRGH IND PE3;

ANALYSIS: Bootstrap=5000;

The Effect of Precarious Employment on the Health of Domestic Workers

OUTPUT: CINTERVAL (BOOTSTRAP);

Mediation for Sweden, Denmark and Belgium

DATA: FILE IS "C:\Users\phamha\

OneDrive - Trimbos-Instituut\

Thesis\Final versions\SEDENBE.dat";

VARIABLE: NAMES ARE Age workAffHealth

EconDep ISCED97 PE Demand Control Gender

BornHere Edu0 Edu1 Edu2 Edu4 Edu5

ObjHealth SRGH Country PE1 PE2 PE3;

USEVARIABLES ARE SRGH PE1 PE2 PE3 Age

Gender BornHere EconDep

Demand Control;

CATEGORICAL IS SRGH EconDep Demand;

MISSING ARE ALL (999);

MODEL:

SRGH ON PE1 PE2 PE3 Age Gender BornHere

EconDep Demand Control;

EconDep Demand ON PE1 PE2 PE3;

MODEL INDIRECT: SRGH IND PE1;

SRGH IND PE2;

SRGH IND PE3;

ANALYSIS: Bootstrap=5000;

OUTPUT: CINTERVAL (BOOTSTRAP);