JOB INSECURITY AND MENTAL HEALTH

Essays on the effect of job insecurity on mental health and the moderating effect of religiousness and psychological factors

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BAANONZEKERHEID EN MENTALE GEZONDHEID

Essays over het effect van baanonzekerheid op mentale gezondheid en het modererende effect van religiositeit en psychologische factoren (met een samenvatting in het Nederlands)

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Contents

Chapter 1

Introduction

1.1 Research problem

When the COVID-19 pandemic started early 2020, the world had just more or less recovered from a global financial crisis that had created much economic insecurity. In the EU, for example, unemployment had gone up from 7.3 per cent of the labour force in 2008 to 11.4 per cent in 2013, only to have returned to 7.3 per cent in 2018. Millions lost their jobs during those years, and presumably an even larger number was in fear of losing theirs, as "[b]eyond the men and women actually unemployed at any moment, are the millions or more at work at that moment but never knowing how long that work or any work for them may last" (Beveridge, 1944).

This job insecurity, and more in particular its effects on workers' mental health, is the central topic of this dissertation. Job insecurity has been conceptualized in various ways, but a common element is the "perception of a potential threat to the continuity of the current job" (Heany et al., 1994, p. 1431). Klandermans and Van Vuuren (1999) called this "perceived job insecurity", to distinguish it from objective job insecurity, which is the actual risk to the continuity of the current job. This distinction is important because for whatever reason, workers' perception of the risk of job loss may be decoupled from the objective risk of job loss they face. The perception of job insecurity is a personal one, and the perceived threat may be real or imaginary. Borg and Elizur (1992) further distinguished between "cognitive job insecurity" and "affective job insecurity": whereas cognitive job insecurity refers to the perception of a threat to employment continuity, affective job insecurity refers to the affective response to this perception. De Witte (2005) adds the element of uncertainty to job insecurity: "insecure employees are uncertain about whether they will retain or lose their current job" (p. 1). In this view, being certain of losing one's job, e.g. because one has been given notice, would not fully qualify as job insecurity. "Employees who feel uncertain cannot adequately prepare themselves for the future, since it is unclear to them whether actions should be undertaken or not" (p. 1).

Job insecurity is not a recent phenomenon. Since the 19th century, recurrent fluctuations in the level of economic activity have been identified. The employment level and the level of job insecurity, this harbinger of unemployment, co-move with the level of activity. Some suggested that, beyond the regular fluctuations, job insecurity is more widespread and pervasive now than it used to be and proclaimed that job insecurity is everywhere (Bourdieu, 1997) and defines current working life (Lorusso, 2018). And there have been developments in the last few decades that would make such a secular trend of increasing job insecurity conceivable.

In the past four decades, information and communication technologies (ICT) in conjunction with trade liberalization and lower transportation costs have reshaped the spatial industrial structure rapidly and significantly. Productivity gains from ICT could best be achieved when ICT was combined with internal restructuring (Brynjolfsson & Hitt, 2000). Examples of ICT in combination with process reengineering reducing the workforce are abundant (see e.g. Corbett, 2004), yet the full extent of job destruction from ICT and its complementary practices are hard to assess (Freeman et al., 1995). The realization of ICT's full potential may take several decades more and the process of ICT displacing jobs is unlikely to end soon. New technologies are being developed that automate tasks that until recently were thought to be immune from automation. Levy and Murnane (2004) still considered it 'hard to imagine' that driving a car through traffic could

be automated. Six years later Google announced that it had adapted Toyota Priuses to autonomous cars, which two years later were allowed on the road in several US states (albeit for the moment under certain conditions).

ICT further allowed firms to unbundle activities and to outsource these activities, domestically or abroad (Brynjolfsson & Hitt, 2000). By outsourcing their non-core business activities to specialized businesses, firms could focus on their core activities and develop and exploit further ICT driven innovations (Corbett, 1995). ICT reduced coordination as well as transaction costs, creating opportunities to trade or manage at arm's length (Abramovsky & Griffith, 2009). Trade liberalization and lower transportation costs increased the competitive pressure from countries with different resource endowments and different standards of living. Thus, both final products, intermediate products, and intermediate business services could increasingly be sourced abroad.

The pace of these changes was fuelled by freer movement of capital (Poelhekke, 2016) in conjunction with changes in corporate governance. Institutional equity ownership became more important, and it came with shareholder activism (Denes et al., 2017; Jung & Dobbin, 2012). Following the precepts of agency theory (Jensen & Meckling, 1976; Jensen & Murphy, 1990), equity-based compensation for executives (Gourevitch & Shinn, 2005; Proffitt, 2001; Useem, 1996), stock option plans and bonuses explain almost fully the sevenfold growth of executive compensation between 1984 and 2004 (Jung & Dobbin, 2012). These developments increased shareholder influence in boardrooms (OECD, 1998), resulting in a stronger focus on shareholder value in the management of firms (Höpner, 2001; OECD, 1998). This shift in focus turned out to be not unequivocally in the interest of workers. Restructurings and downsizings were frequently used strategies in order to create shareholder value (Froud et al., 2000; Shleifer & Summers, 1988). The number of downsizings increased during recent decades, and they were not limited to economic downturns (Budros, 1997; Jung & Dobbin, 2012; Lazonick & O'Sullivan, 2000). Job cuts were effectuated even in healthy firms that showed consistent profitability. At times, firms used downsizings in order to meet analyst forecasts (Jung & Dobbin, 2012). This downsizing strategy turned out effective: announcements of proactive reduction in workforce had a positive effect on share prices (Capelle-Blancard & Tatu, 2012; Mace, 2020). Value creation may have been expected from shedding workers who are unable to handle new technologies in order to replenish with workers who are (Baumol et al., 2003). Thus, the 1980s and 1990s witnessed a dismantling of internal labour market practices such that the firm no longer buffers the relationship with workers from outside pressures (Cappelli, 2000; Grimshaw et al., 2001). On top of workers' loss of power to shareholders, firms became increasingly foreign-owned (e.g. Brummer, 2012; Burke-Kennedy, 2016). Fears that foreign ownership may be less concerned with local interests, such as employment, may not be completely unfounded. Studies found overreliance by foreign-owned firms on downsizing to increase productivity (De Backer & Sleuwaegen, 2003), on outsourcing of activities (Girma & Görg, 2004), and facing a more elastic labour demand as well as being more inclined to close a subsidiary (Fabbri et al., 2003). The overall evidence about foreign firm exit is mixed, though (Wagner & Gelübcke, 2012).

These spatial industrial dynamics were accompanied by significant worker reallocation across and within regional labour markets. This worker reallocation was facilitated by less stringent employment protection legislation (EPL): various combinations of less protection

against dismissal and more possibilities for flexible contracts (precarious employment). In the EU, temporary employment went up from 8.7 per cent of dependent employment in 1983 to 15.6 per cent in 2018 (OECD, 2022). In some countries, such as the Netherlands, the decrease in permanent contracts did not only stem from an increase in temporary employment, but also from an increase in self-employment. In the Netherlands temporary employment almost trebled between 1990 and 2018, from 7.6 per cent of dependent employment in 1990 to 21.5 per cent in 2018 (OECD, 2022a), with (up until 2016) a relatively low probability of transitioning from temporary employment into a permanent contract (Eurostat, 2021). The share of self-employment increased from 12.8 per cent of total employment in 2003 to 16.5 per cent in 2018, entirely due to an increase in self-employment without staff that went up from 8.1 per cent of total employment in 2003 to 12.2 per cent of the employed labour force in 2018 (CBS, 2022). Protection against dismissal from permanent contracts, however, remained largely unchanged in the Netherlands during the past four decades. Not only private sector employment became less secure. Public sector employment, long time considered more secure than private sector employment, also became less secure, through privatization, budget cuts, easier dismissal and the use of flexible contracts. For those who actually lost their jobs, be it in the private or the public sectors, unemployment insurance benefits became less generous (see Pallage et al. 2013).

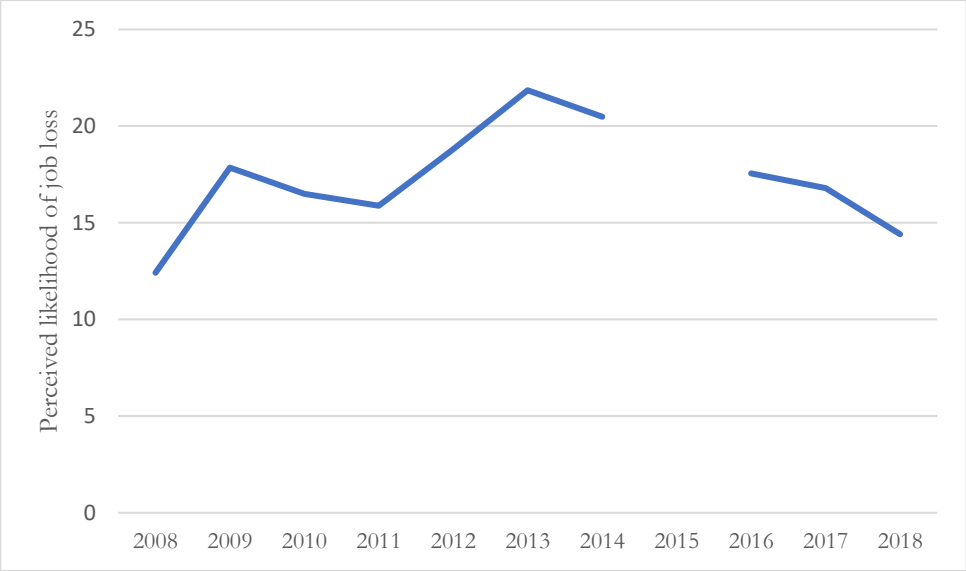
Despite all the industrial and institutional dynamics, average job duration does not appear to have declined and the probability of job loss does not seem to have increased in Europe or the US (Diebold et al., 1997; Euwals & Meijerink, 2018; Farber, 1998; Loog & Smits, 2016; Nickell et al., 2002). Such averages mask, however, that there may be winners and losers. Farber (1998) did find a US private sector decline in average tenure and long-term employment for men but not for women, as well as a public sector increase in average tenure and long-term employment both for men and (even stronger) for women. Aaronson and Sullivan (1998) found an increase in US displacement for workers with longer tenure, and pointed at a "democratization" of displacement: whereas in the 1980s high rates of displacement were found mainly with workers with lower education, working in blue-collar occupations or in manufacturing, in the 1990s the displacement rates for highly educated workers, working in white-collar jobs or in service producing industries had risen especially fast. Aaronson and Sullivan argue that "[a]s a result of this increased democratization of displacement, many more workers may now consider themselves at risk for job loss" (p. 18). The phenomenon that middle class jobs are possibly even more at risk from being suppressed than lower class jobs is well documented both for the US (e.g. Autor & Dorn., 2013) and for Western European countries (see e.g. Goos et al., 2014).

Like studies into the trend in objective job insecurity, studies into the evolution of perceived job insecurity failed to find convincing statistical evidence of a secular increase (Aaronson & Sullivan, 1998; Brochu & Zhou, 2009; Green, 2003; 2009). Admittedly, Aaronson and Sullivan did find an increase in US perceived job insecurity, but the "main change has been an increase in the number of workers responding that it is "not too likely" rather than "very unlikely" that they will lose their jobs" (p. 18). Earlier reports of a secular increase in job insecurity (Schmidt, 1999) relied on shorter time periods, and subsequent reductions in job insecurity cast doubt on the validity of that conclusion. Similarly, Green (2003) found some evidence that in the UK perceived job insecurity had increased in the 1970s and 1980s, to have returned to lower levels by the turn of the century. Again, such conclusions mask that there may be winners and losers. Aaronson and Sullivan

(1998) found for the US that those "who have experienced the largest increases in displacement rates have also had the largest increases in reported probabilities of job loss" (p. 18): perceived job insecurity had increased for white-collar workers and actually decreased for blue-collar workers. In the same way, Green (2003) found an increase in the 1990s in UK perceived job insecurity in professional workers and in the finance industry. Green furthermore found an increase in perceived job insecurity in workers in foreign-owned firms.

Systematic measurement of job insecurity in the Netherlands started later than in the aforementioned countries. The LISS (Longitudinal Internet Studies for the Social sciences) panel administered by CentERdata (Tilburg University, The Netherlands), a representative sample of Dutch individuals (see also par. 2.3), includes items about perceived likelihood of job loss and the uncertainty whether the job will continue to exist as of 2008. Figures 1.1 through 1.3 show that in the years thereafter job insecurity almost doubled, to more or less return to the 2008 starting level by 2018. What does not seem to have returned to the starting level is the broad swath of people who deny all job insecurity, i.e. the people who perceive a zero per cent likelihood of job loss or who disagree entirely that it is uncertain whether their job will continue to exist. This bounces back a little, but seems to remain at a lower level.

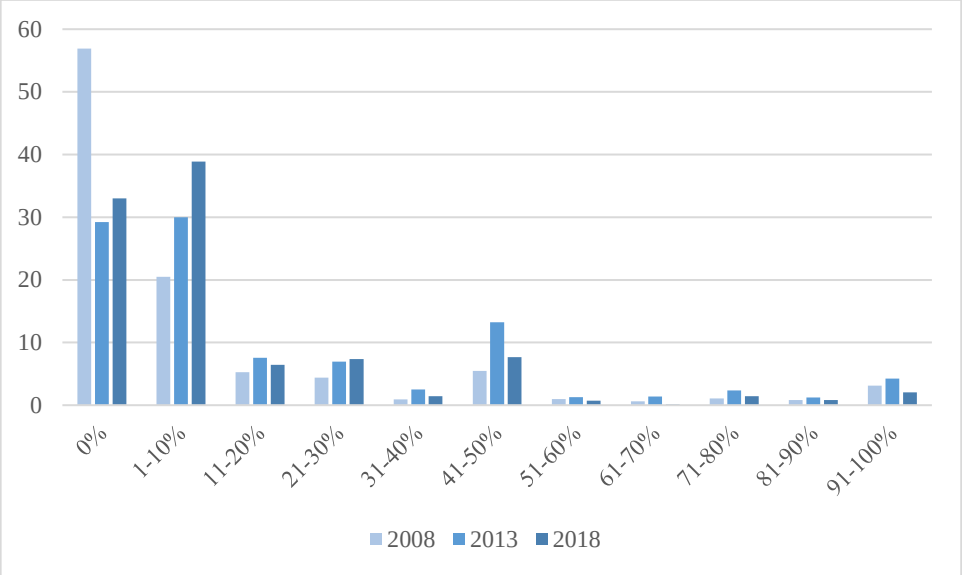
Figure 1.1. *Average perceived likelihood of job loss of employees working at least 12 hours a week (in per cent) in the Netherlands, 2008-2018*



Note: value for 2015 omitted from analytical sample (see par. 2.3.2)

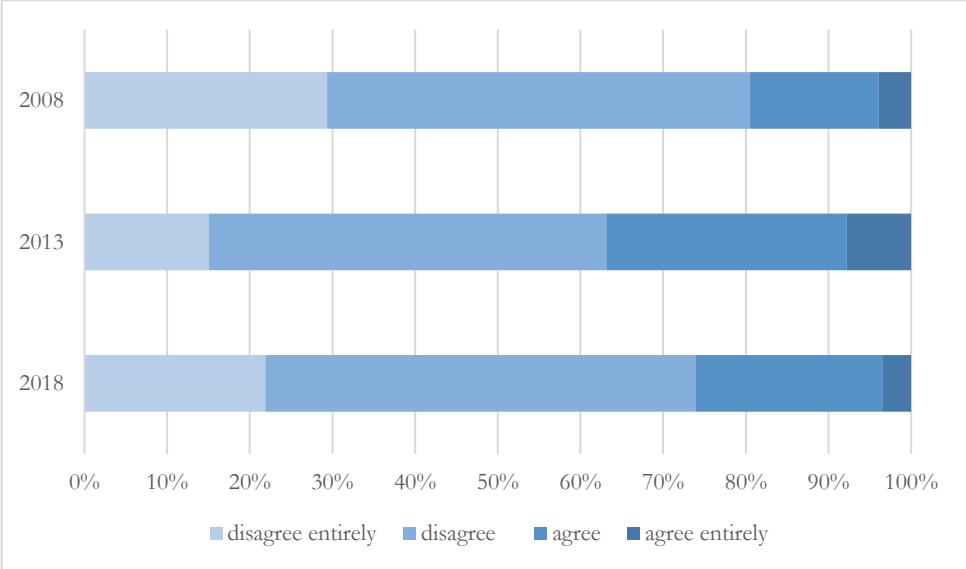
Source: LISS data (own calculations based on the main analytical sample, see par. 2.3.3)

Figure 1.2. *Frequency distribution of perceived likelihood of job loss of employees working at least 12 hours a week in the Netherlands, in 2008, 2013, and 2018 (in per cent)*



Source: LISS data (own calculations based on the main analytical sample, see par. 2.3.3)

Figure 1.3. *Job insecurity in the Netherlands, 2008-2018. Level of agreement with "It is uncertain whether my job will continue to exist"*



Source: LISS data (own calculations based on the main analytical sample, see par. 2.3.3)

Despite the apparent lack of a secular trend in job insecurity, concerns have been raised over the well-being of those affected by job insecurity (workers and partners). These concerns have been raised for at least two reasons. One reason is that ill health is a cause of disability and absenteeism, causing economic waste and thus lowering economic output, the traditional measure of welfare. Another reason is that several countries make first steps in using broader definitions of welfare as the basis for policy making (see e.g. ESB, 2021; Fitoussi & Stiglitz, 2011; Frijters et al, 2020), wherein well-being in general and health in particular figure explicitly. The importance of mental health for well-being is made clear in World Happiness Report 2013: "... mental health is the single most

important determinant of individual happiness (in every case where this has been studied)" (Helliwell et al., 2013, p. 4). Such broader welfare considerations suggest that above and beyond repercussions for GDP itself, there may be conflicts between policy goals: what might be gained with flexibility in terms of GDP is to some unknown extent lost in terms of well-being.

Unknown, as the effects of job insecurity on well-being and health are not well understood. There have been many studies in health sciences and work and organizational psychology on the relation between perceived job insecurity and well-being and/or (mental) health. The general conclusion of these studies is that job insecurity is negatively associated with well-being and (mental) health (see De Witte et al., 2016 and Llosa et al., 2018 for a review and a meta-analysis on the association between job insecurity and psychological well-being and health). A limitation of these studies is that they are generally cross-sectional and/or use small, unrepresentative samples. Cross-sectionality is a drawback as such studies, unable to control for unobserved individual characteristics, are prone to omitted variable bias. Individual characteristics, e.g. good physical health or an optimistic disposition, may influence job insecurity negatively and mental health positively. Thus, omitted variables could lead to inconsistent estimates of the effect of job insecurity on mental health. As many individual characteristics appear to contribute to a negative association between job insecurity and mental health, a null effect in within-individual analysis would not be inconceivable.

Panel data offer better opportunities for isolating the effect of job insecurity on mental health, as they permit to exploit both between and within variation in job insecurity and mental health ánd allow to account for time-invariant unobserved individual characteristics. Panel data studies on the effects of perceived job insecurity appeared relatively recently in the applied econometrics literature. Green (2011) used panel data from an Australian national probability sample and accounted for unobserved individual characteristics by employing a fixed-effects estimator. He found that more perceived likelihood of job loss was accompanied by a decrease in mental health in men. Reichert and Tauchmann (2017) employed the same strategy on panel data of private sector workers in Germany and found that becoming more concerned about job insecurity was accompanied by a deterioration in mental health. Johnston et al. (2020) also used Australian data, but their sample was limited to individuals employed in the mining industry. Using an instrumental variables analysis by exploiting arguably exogenous variation in world commodity prices, Johnston et al. found that higher commodity prices were associated with greater job security and that this in turn was associated with better mental health. Thus, these authors were the first to infer a causal effect from job insecurity on mental health. Other panel studies, even fixed-effects analyses, still left room for the possibility of omitted time-varying confounding factors driving the results and reverse causality, mental health deterioration being the cause of job insecurity.

Hence, both the vast literature in health sciences and social psychology and the few studies in applied econometrics on this issue indicate that job insecurity matters for well-being and (mental) health. Replication of these panel studies in other institutional contexts and/or with other time frames could bolster claims about the generalizability of these findings. De Witte et al. (2016) also catalogued areas for further research. This dissertation covers a number of the areas therein suggested: it examines the moderating role of demographic and job-related variables; it examines the moderating role of various time lags between measurements; it provides empirical evidence for and against some of the theories used to explain an effect of job insecurity on mental health.

1.2 Contributions

This dissertation contributes to the existing literature in several ways. First, it extends the so far limited number of panel studies investigating the mental health effects while controlling for unobservable time-invariant characteristics. Unlike some studies (e.g. Reichert & Tauchmann, 2017), that rely on data with ordinal ranking of affective job insecurity, this dissertation uses cardinal ranking of cognitive job insecurity. Cardinal ranking is a better predictor of subsequent job loss than ordinal ranking (Dickerson & Green, 2012), and unlike affective job insecurity, cognitive job insecurity is not conceptually confounded with mental health (Probst, 2002). Furthermore, the data used cover the unfolding of an economic crisis that raised job insecurity in the Netherlands to levels exceeding those in most previous studies. And whereas most studies (e.g. Green (2011) and Johnston et al. (2020)) investigated the problem in a typical liberal market economy (Hall & Soskice, 2001), the Dutch economy provides a context of a more hybrid set of institutions, combining elements of the coordinated market economy and the liberal market economy. In addition, the Netherlands is well known for its high prevalence of part-time jobs, particularly among women (ILO, 2016). The institutional context may influence how workers deal with the stress of job insecurity. Hence, this dissertation shows whether findings from prior research replicate when using a different measure, context, and time frame. This dissertation also compares the results from own analyses of the Dutch, German, and Australian panel data sets. Additionally, as these data sets all have different time lags between measurements of job insecurity and mental health, plausible conjectures about the moderating effect of time lags are provided.

Second, this dissertation provides an analysis of effect heterogeneity by gender. According to some scholars (e.g. Kagan, 2019), gender is among the attributes of individuals that affects all other psychological measures in a nontrivial way. Women are more risk averse but less ambiguity averse than men (Borghans et al., 2009). The importance of work may differ by gender (Lamont, 2002; Van der Meer, 2014), thus giving rise to differences in evaluations of potential job loss. Men and women differ in their physiological stress response (e.g. Handa & McGivern, 2016) and in susceptibility to affective illness (e.g. Rubinow & Schmidt, 2019). Men and women differ in coping style (e.g. Matud, 2004), and in their ability to process emotional information. Therefore, it is important not to pay attention only to the average mental health effect of job insecurity, but also to any differential effects that job insecurity may have on men's and women's mental health. This aspect has received limited attention in studies thus far. The dissertation also provides an analysis of effect heterogeneity by other demographic and job-related factors.

Third, this dissertation provides an extensive analysis of effect heterogeneity by religiousness and aspects thereof. Many studies have found a positive effect of spirituality and religiousness on mental health and on coping with stress (e.g. AbdAleati et al., 2016; Lucchetti et al., 2021). The mechanisms that explain such an effect are not well understood. This dissertation analyses longitudinally the thus far largely neglected role of religiousness in the mental health effect of job insecurity. In doing so it also examines mechanisms by which religiousness may act on the relationship between job insecurity and mental health. This is to our knowledge the first study of its kind.

Fourth, this dissertation provides an analysis of the role of personality and self-evaluation traits in the mental health effect of job insecurity. The Big5 personality traits affect many life outcomes, including mental health, and hence are also expected to influence the mental health effect of job insecurity. This dissertation investigates the moderating role of the Big5 personality traits in the mental health effect of job insecurity. Furthermore, it is generally accepted in the psychological literature that self-efficacy leads to better outcomes and is associated with better mental health. There is, however, some ambiguity about the effect of self-efficacy on the stress response. This dissertation contributes to this literature by investigating the moderating effect of self-efficacy on mental health in case of job insecurity.

1.3 Overview of the empirical chapters

Each empirical chapter of this dissertation examines a specific aspect of the overarching research question on the effect of job insecurity on mental health and moderating variables. The four empirical chapters are outlined below and are summarized in Table 1.1, which is presented at the end of this chapter.

The first part (Chapter 2) focuses on the link between job insecurity and mental health. Chapter 2 studies the effect of job insecurity on mental health in the Netherlands. It demonstrates the predictive value of perceived job insecurity. Subsequently, the chapter investigates whether findings from prior panel studies that controlled for unobserved time-invariant characteristics using data from Australia and Germany replicate when using a different measure, context and time frame. Finally, it investigates effect heterogeneity by gender, some other demographic characteristics, and some labour market characteristics.

In the second part of the dissertation (Chapters 3, 4 and 5), the focus shifts to the moderating effect of religiousness and psychological factors in the mental health effect of job insecurity. Chapter 3 concentrates on the moderating role of religiousness in the mental health effect of job insecurity. It also examines mechanisms by which religiousness may act on the relationship between job insecurity and mental health. Chapters 4 and 5 provide an analysis of the role of personality and self-evaluation traits in the mental health effect of job insecurity.

1.3.1 Chapter 2: The bigger they come, the harder they fall. Dealing with job insecurity

The first empirical chapter examines the mental health effect of job insecurity in the Netherlands by using longitudinal data (2008-2018). The chapter replicates prior longitudinal research into the mental health effect of job insecurity that controls for time-invariant unobserved characteristics for Australia (Green, 2011) and Germany (Reichert & Tauchmann, 2017). Australia, Germany and the Netherlands differ in their institutions, cultural norms, and policies and standards referring to both paid work and unemployment. Australia can be characterized as a liberal market economy (Hall & Soskice, 2001), Germany as a coordinated market economy. The Netherlands has a somewhat hybrid set of institutions, with its corporatist industrial relations, strict employment protection

legislation for permanent workers combined with rather loose employment protection legislation for temporary workers (OECD, 2022b) and its high prevalence of part-time jobs, particularly among women (ILO, 2016). It is not unlikely that the mental health effect of job insecurity depends to some extent on the context of such institutions. The chapter therefore contributes to our knowledge about the mental health effect of job insecurity in an institutional context that differs from the ones for which this effect hitherto has been studied.

In terms of measurement, the chapter differs from the Reichert and Tauchmann study. The latter used ordinal ranking of job insecurity and used measures of affective job insecurity. Ordinal ranking of job insecurity appears not as good a predictor of subsequent job loss as cardinal ranking (Dickerson & Green, 2012), and affective job insecurity may be conceptually confounded with mental health (Probst, 2002). Chapter 2 uses cardinal ranking rather than ordinal ranking of job insecurity and uses a measure of cognitive job insecurity rather than a measure of affective job insecurity. Beyond replication, the chapter also extends the knowledge on effect heterogeneity between groups. The mental health effect of job insecurity may differ by gender, as the importance of work differs between men and women and as men and women respond differently to stress. Yet, also other demographic and labour market characteristics may influence the mental health effect of job insecurity: age, family situation, level of education, type of contract. The chapter therefore also considers potential effect heterogeneity for these groups.

1.3.2 Chapter 3: 'No manner of hurt was found upon him'. The role of religiousness in the mental health effect of job insecurity

Chapter 2 found heterogeneity in the mental health effect of perceived job insecurity among groups according to demographic and labour market characteristics. Chapter 3 continues this line of investigation by examining effect heterogeneity according to religiousness and religious denominations. There is a strand of literature on the effect of religiousness and cognitions or behaviours related to it on mental health and dealing with stress. Yet, empirically little is known about the role of religiousness in the mental health effects of job insecurity. Schreurs et al. (2014) investigated the moderating effect of religiousness in the relationship between job insecurity and burnout. Using cross-section data from a non-random sample of 238 Dutch employees and employing structural equations modelling they found a positive interaction effect between perceived job insecurity and religiousness, from which these authors concluded that religiousness acts more as a burden than as a buffer. Chapter 3 is the first to analyse longitudinally and with a representative, large sample (LISS) whether religiousness acts as a buffer or a burden to mental health when employees perceive job insecurity. Much is still unclear about the mechanisms by which religiousness affects mental health and dealing with stress. The mechanisms by which religiousness could buffer or burden an individual faced with job insecurity are diverse. The chapter sets out to find out which mechanisms are responsible for the moderating role of religiousness.

1.3.3 Chapter 4: Five under stress. The role of personality in the mental health effect of job insecurity

Personality traits, in particular the Big5 personality traits, are increasingly recognized as powerful predictors of important life outcomes, such as educational attainment, job performance and wages, and health (see e.g. Borghans et al., 2008; Roberts et al., 2007; Strickhouser et al., 2017). The Big5 personality traits also appear to matter for stress regulation (e.g. Chida & Hamer, 2008; Schneider et al., 2012), but this is confirmed mainly in lab studies. Whether the Big5 personality traits also matter outside the lab, when dealing with real-life stressors, is not yet clear. Chapter 4 contributes to this literature by investigating to what extent the Big5 personality traits moderate the mental health effects of job insecurity. In real life and over the course of years: are some personalities more resilient to the demands of modern flexible labour markets than others? To this end the chapter analyses three large, comparable household panel data sets for the Netherlands (LISS), Germany (SOEP), and Australia (HILDA). The chapter also offers the comparative perspective on the direct effect on mental health of job insecurity that an analysis of these three data sets allows for.

1.3.4 Chapter 5: When '*can do*' turns against you. Self-efficacy and the mental health effect of job insecurity

People's evaluations of themselves may be another factor that influences the way they deal with stress. One of these self-evaluations is self-efficacy, the belief held by people that they, by their actions, are able to influence events in their lives. Bandura (2010) found ample evidence to consider self-efficacy "the foundation of human motivation, performance accomplishments, and emotional well-being". There is ambiguity in the literature, however, about the effect that self-efficacy has on the stress response. Schönfeld et al. (2017) discuss many studies indicating that self-efficacy diminishes the negative mental health effects of stressors. They also discuss a few studies that find no effect of self-efficacy on the mental health effect of stressors or that find the converse, that self-efficacy increases the negative mental health effects of stressors. The studies on the subject often involve somewhat imprecise notions of stress, such as daily stress, study stress, or the stress from ageing, and often are limited in measurement moments and number of respondents. Chapter 5 investigates the role of self-efficacy in the mental health effect of job insecurity by investigating to what extent the mental health deterioration following job insecurity is moderated by baseline self-efficacy. The chapter contributes to the literature by using a clear stressor, by considering long-term effects of the stressor on mental health, and by a large number of respondents.

1.4 Dissertation at a glance

The five empirical chapters of this dissertation are presented in Table 1.1. For each chapter, the table indicates the specific focus of the chapter and its main contributions. The dataset used in chapters 2, 3, and 5 is LISS panel data from the Netherlands. In chapter 4 three datasets are used: HILDA from Australia, SOEP from Germany, and LISS panel data from

the Netherlands. In all three chapters the main method of analysis are pooled ordinary least squares (pooled OLS) and fixed-effects (FE) regression.

Table 1.1. *Overview of the empirical chapters of the dissertation*

Chapter	Focus	Main contributions
2	mental health effect of job insecurity	- replication of longitudinal studies in context of hybrid of liberal and coordinated market economy -using a different job insecurity item - investigating effect heterogeneity by demographic and job-related factors
3	role of religiousness in mental health effect of job insecurity	- first large panel data study in role of religiousness in mental health effect of job insecurity
4	role of personality in mental health effect of job insecurity	- first large panel data study in role of personality in mental health effect of job insecurity -comparative perspective: effect size comparison in countries with differing institutional contexts - moderating effect of various time lags
5	role of self-efficacy in mental health effect of job insecurity	- first large panel data study in role of self-efficacy in mental health effect of job insecurity

Chapter 2

The bigger they come, the harder they fall. Dealing with job insecurity[1]

Abstract

We analyse the effect of perceived job insecurity on mental health using longitudinal data from a representative sample of Dutch employees from 2008-2018. Using a fixed effects estimator to control for time-invariant unobserved individual characteristics, we find that job insecurity is a statistically significant predictor of mental health deterioration, but the effect size is rather small: a 100 percentage points increase in perceived chance of job loss is associated with a 2 points decline (on a scale of 0-100) in mental health. Detrimental mental health effects appear limited to particular groups of workers: men, especially men with a partner, with a medium or high level of education, and with a permanent contract, and men and women with high incomes. It is recommended that policy measures be targeted on these groups.

Keywords: job insecurity; mental health; labour market dynamics; panel data

[1] An earlier version of this chapter was presented at the 18th INFER Annual Conference in Reus (Spain) and at the 15th Journées Louis-André Gérard-Varet in Aix-en-Provence (France). An adaptation of the earlier version was published as De invloed van baanonzekerheid op mentale gezondheid [The effect of job insecurity on mental health] in Economisch Statistische Berichten, nr. 4725, vol. 101, Jan 7, 2016.

2.1 Introduction

Today's labour markets are more flexible than a few decades ago (OECD, 2004; 2013). Relatively closed economies back then permitted tightly regulated labour markets that offered ample protection to workers. Globalization has since intensified competition, and scholars and policy makers have argued that more adaptable production systems and flexible labour markets are important for firm survival in the global economy (e.g. OECD, 1994). However, more labour market flexibility almost invariably implies a deterioration of the security of incumbent workers and jobs. It is often assumed that such a loss in security is detrimental for the well-being of those affected and may cause depressive symptoms (see e.g. Fitoussi & Stiglitz, 2011).

This study aims to contribute to our understanding of the effects of labour market flexibility on well-being. Using longitudinal data (2008-2018) from the Netherlands, we examine the effects of job insecurity on mental health. Mental health is generally considered a very important, if not the most important, indicator of well-being (Layard et al., 2013). To address endogeneity concerns due to time-invariant unobserved characteristics, we exploit within-individual variation in job insecurity and mental health.

Although the association between job insecurity and mental health has been studied in the epidemiological and psychological literature (see Sverke et al., 2002), most studies do not address the endogeneity problem. Exceptions are Green (2011) and Reichert and Tauchmann (2017), who all control for time-invariant unobserved characteristics by using a fixed effects estimator. We follow a similar strategy and contribute to the literature in several ways.

First, unlike some studies (e.g. Reichert &Tauchmann, 2017) relying on data with ordinal ranking of affective job insecurity, we use cardinal ranking of cognitive job insecurity. Cardinal ranking is a better predictor of subsequent job loss than ordinal ranking (Dickerson & Green, 2012), and unlike affective job insecurity, cognitive job insecurity is not conceptually confounded with mental health (Probst, 2002). Second, our data cover the unfolding of an economic crisis that raised job insecurity in the Netherlands to levels exceeding those in most previous studies. In the aftermath of the 2007 US subprime mortgage crisis the Dutch economy went into recession and unemployment went up from 3.7 per cent of the labour force in 2008 to 7.3 per cent of the labour force in 2013, to recover to 3.8 per cent of the labour force in 2018. Such figures on the registered unemployed are just the tip of the labour market iceberg, however, as Beveridge famously remarked: "[b]eyond the men and women actually unemployed at any moment, are the millions more in work at that moment but never knowing how long that work or any work for them may last" (1944, p. 256). Third, whereas most studies (e.g. Green (2011) and Johnston et al. (2020)) investigated the problem in a typical liberal market economy (Hall & Soskice, 2001), the Dutch economy provides a context of a more hybrid set of institutions, combining elements of the coordinated market economy and the liberal market economy. The Dutch labour market at the time was characterized by stringent protection against dismissal for permanent workers; few constraints on the use of fixed-term contracts and temporary agency work; unemployment insurance benefits with a high replacement rate, of EU-average duration, yet with a long qualifying period; a high minimum wage; and a large share of workers covered by collective bargaining. The Netherlands has also been characterized as 'the only part-time economy in the world' (Freeman, 1998, p. 2), reflecting the prevalence of part-time jobs, particularly among women (ILO, 2016). Finally, we provide an

extensive analysis of effect heterogeneity. Men and women may have different attachments to jobs - despite changes that have taken place in the labour market position of women in the last decades (Hartog & Salverda, 2018; ILO, 2016) - which may affect how well they cope with job insecurity. Women and men may also have different ways of coping with job insecurity (e.g. Matud, 2004), with possibly varying outcomes. Therefore, we do not only pay attention to the average mental health effect of job insecurity, but also to any differential effects that job insecurity may have on men's and women's mental health. As the mental health effect of job insecurity may furthermore differ by age, family situation, education level, and contract type, we also investigate the influence of these factors for men and women separately.

The next section discusses the previous literature on the effect of job insecurity on mental health. Section 3 presents the data used in the analysis, section 4 explains the estimation strategy, section 5 reports the regression results, section 6 presents robustness checks, and section 7 concludes.

2.2 Previous literature

Job insecurity has been conceptualized in various ways, but a common element is the "perception of a potential threat to the continuity of the current job" (Heaney et al., 1994). Klandermans and Van Vuuren (1999) called this "perceived job insecurity", to distinguish it from objective job insecurity, which is the actual risk to the continuity of the current job. The perception of job insecurity is a personal one, and the perceived threat may be real or imaginary. Borg and Elizur (1992) further distinguished between "cognitive job insecurity" and "affective job insecurity". Cognitive job insecurity refers to the perception of a threat to employment continuity; affective job insecurity refers to the affective response to this perception.

Job insecurity may be harmful to mental health because stress may cause a deterioration in mental health (for a review see Schneiderman et al., 2005). Job loss is found to be a stressor (Hobson et al., 1998) and the anticipation of a stressor can have similar effects to the stressor itself (Lazarus & Folkman, 1984). A negative association between job insecurity and mental health has been consistently found in the epidemiological and psychological literature (Llosa et al., 2018; Sverke et al., 2002). However, endogeneity and selection problems prevent a causal interpretation of this association. Rather than job insecurity causing a mental health deterioration, the association may be due to workers with mental health problems perceiving more job insecurity. The latter can be caused by workers with mental health problems being selected into more insecure jobs, or by mental health problems bringing with them an increasingly gloomy view of own job security. Furthermore, unobserved characteristics (e.g. optimism; see Conversano et al., 2010) may affect both job insecurity and mental health, resulting in an association that is not causal.

Hellgren and Sverke (2003) used data on affective[2] job insecurity and mental health of survivors of a first round of downsizing in a Swedish retail company. They found that a latent variable model specifying a causal effect from perceived job insecurity on mental health fitted their data better than alternative models of reverse causation (mental health causing perceived job insecurity), mutual causation, or no relationship at all. While no formal proof of causality, these results supported the notion that job insecurity leads to mental health deterioration.

[2] The scale used was constructed from three items, two of them reflecting affective job insecurity, one cognitive job insecurity.

Mandal et al. (2011) used panel data on cognitive job insecurity and depression from the US Health and Retirement Study from 1992-2006. A random effects model was used as unobserved personal or job characteristics appeared not to affect perceived job insecurity. Mandal et al. found that job insecurity was a significant predictor of depression in older workers in the age range of 55-65 years, but not in younger workers in the age range of 45-55 years. The effect was rather small: depression increases by 0.15 on a scale from 0 to 8 (or 0.0875 sd) when perceived likelihood of job loss increases from 0 to 100 per cent.

Unobserved time-invariant characteristics were controlled for by Green (2011), who used panel data from 2001-2008 on cognitive job insecurity and mental health in employees in an Australian national probability sample. In a fixed-effects approach he found that in men an increase in perceived likelihood of job loss was accompanied by a decrease in mental health of 3.9 points on a scale from 0 to 100 (or 0.25 sd); in women no significant effect was found.

Reichert and Tauchmann (2017) controlled for unobserved time-invariant characteristics as well. They used three waves (2002, 2004 and 2008) of panel data on affective job insecurity and mental health of private sector workers in Germany. In a fixed-effects approach they found that a shift from 'not concerned about job insecurity' to 'somewhat or very concerned' lowered mental health by 1.4 points on a scale from 0 to 100 (or 0.15 sd).

Johnston et al. (2020) used an instrumental variables approach to address the endogeneity problem caused by reverse causality. The authors used Australian data from 2001-2017 on a composite variable of affective and cognitive job insecurity and mental health for individuals employed in the mining industry. By exploiting arguably exogenous variation in world commodity prices, Johnston et al. found that higher commodity prices were associated with greater job security and that this in turn was associated with better mental health.

Caroli and Godard (2014) found in a cross-sectional sample of men from 22 European countries that perceived cognitive job insecurity increased the probability of self-reported health problems, among which depression and anxiety. When they instrumented job insecurity by the stringency of employment protection legislation in the country of residence interacted with the rate of dismissals in the industry in the US – the identifying assumption being that workers do not self-select in sectors-by-country on the basis of characteristics that are correlated with their health – these authors found a negative effect of job insecurity on the probability of some self-reported health problems, but not on mental health problems.

Job insecurity appears consistently negatively associated with mental health. Endogeneity and selection problems prevent a causal interpretation of this association. A limited number of studies attempt to control for endogeneity. While they do not provide formal proof of causality, their results support the notion that job insecurity leads to a mental health deterioration.

2.3 Data and descriptive analysis

Data are from the LISS (Longitudinal Internet Studies for the Social sciences) panel administered by CentERdata (Tilburg University, The Netherlands; Centerdata, n.d.; Scherpenzeel, 2011). The LISS panel is a representative sample of Dutch individuals who participate in monthly internet surveys. The panel is based on a true probability sample of households drawn from the population

register. Households that could not otherwise participate are provided with a computer and Internet connection. A longitudinal survey is fielded in the panel every year, covering a large variety of domains including work, education, income, housing, time use, political views, values and personality. For this chapter we use data from 2008-2018.

For the purposes of these analyses only employees in permanent or temporary employment, on-call employees or temp-staffers are considered; self-employed/freelance workers, independent professionals, directors of limited liability companies or majority shareholder directors are excluded from the analytical sample, as in their case the notion of a job is more ambiguous and/or the notion of job insecurity qualitatively different; the focus in these analyses is on employees. The analyses are limited to employees who work at least 12 hours a week. [3]

2.3.1 Dependent variable: mental health

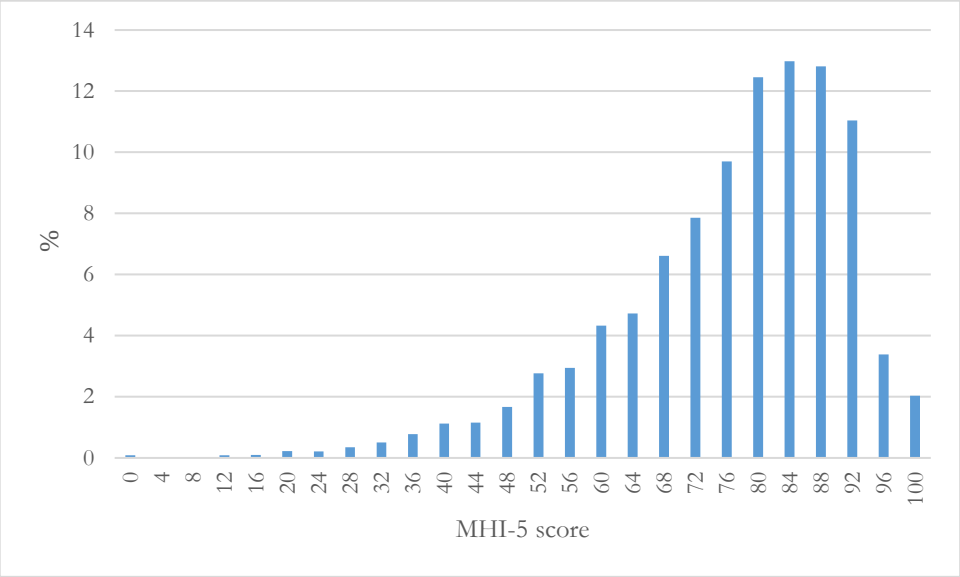
The LISS Health study, administered in November and December every year (except in 2014, when it was not administered at all, and 2015, when it was administered in July and August), contains the Mental Health Inventory (MHI)-5. The MHI-5 covers two major mental health dimensions: anxiety and depression. The MHI-5 uses the five items from the 38 item HIE MHI that formed the best predictor of the summary score of the full MHI. The exact wording of these items is: "The following questions are about how you felt over the past month. For every question, please choose the answer that best describes how you felt during this past month. This past month ... MHI1 I felt very anxious … MHI2 I felt so down that nothing could cheer me up … MHI3 I felt calm and peaceful … MHI4 I felt depressed and gloomy … MHI5 I felt happy", with answer categories 1 = never; 2 = seldom; 3 = sometimes; 4 = often; 5 = mostly; 6 = continuously.

These five items in the MHI-5 correlated 0.92 with the MHI total score (from the 38 item HIE Mental Health Inventory), both in-sample and out-of-sample (Davies et al., 1988). Subsequent research confirmed the MHI-5's good psychometric performance, its validity to screen for mood and anxiety disorders, and its predictive validity (see e.g. Rumpf et al., 2001; Strand et al., 2003; Thorsen et al., 2013).

The MHI-5 is widely used in surveys of mental health. Yet, there is no agreed-upon cut-off point to define a case of common mental disorder of anxiety or depression (e.g. Hoeymans et al., 2004). All outcomes between 50 and 78 have been suggested as cut-off points. The standard procedure for calculating MHI-5 scores is to code MHI1, MHI2, and MHI4 reversely, such that 6-1 becomes 0-5, and to recode MHI3 and MHI5 such that 1-6 becomes 0-5, to subsequently sum the scores and then multiply the sum total by 4 (Ware et al., 1993), such that the MHI-5 scale is from 0-100. The Cronbach's alpha for the five items is in our sample 0.84, indicating good reliability. Figure 2.1 shows the distribution of MHI-5 scores.

[3] In the robustness check this limitation was dropped in order to be more in line with the current definition of employment in the Netherlands where every person working for 1 hour or more is counted as an employed person.

Figure 2.1. *Frequency distribution of MHI-5 scores of employees working at least 12 hours a week in the Netherlands, 2008-2018 (in per cent)*



Source: LISS data (own calculations based on the main analytical sample, see par. 2.3.3)

2.3.2 Job insecurity

We capture variation in job insecurity with the following item in the LISS Income study: "Do you think that there is any chance that you might lose your job in the coming 12 months? You can indicate this in terms of a percentage. 0% means that you are sure that you will not lose your job, and 100% means that you are sure that you will lose your job." The LISS Income study is administered every June and July (except in 2008, when it was administered in June and September, and in 2014, when it was administered in October and November)[4].

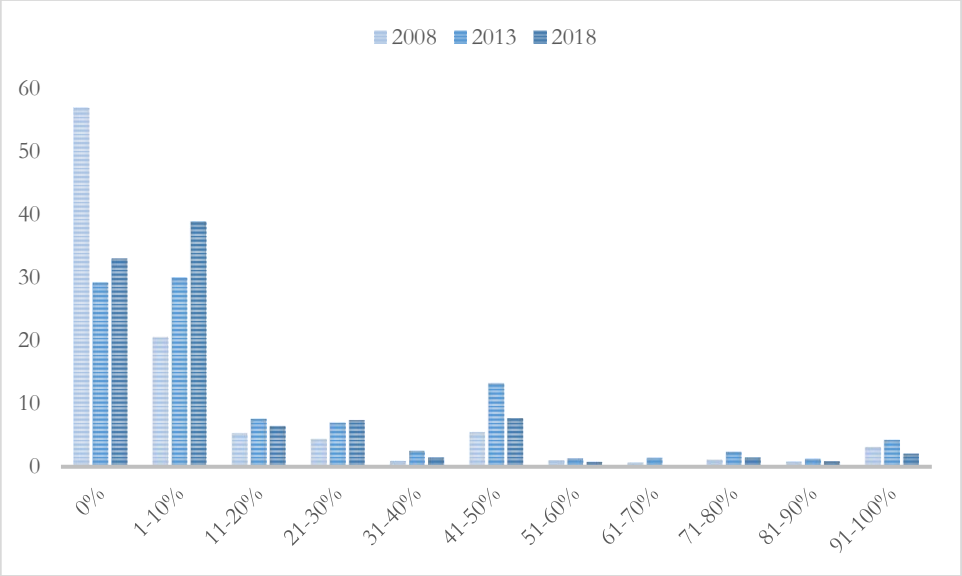
2.3.2.1 Distribution of perceived likelihood of job loss

Figure 2.2 shows that two out of three respondents perceived a 10 per cent or smaller chance of losing their job in the coming 12 months, 1 in 10 considered it 50/50, and 1 in 30 was close to or absolutely certain of job loss. Close to 4 out of 10 respondents said there was no chance of them losing their job at all. The proportion of respondents with a perceived chance of job loss equal to 0 per cent almost halved after 2008, from 57 per cent in 2008 to 29 per cent in 2013, and went up to 33 per cent in 2018. The average perceived chance of job loss went up from 12.4 per cent in 2008 to 21.9 per cent in 2013 and went down to 14.4 per cent in 2018. The proportion of respondents who perceived a more than 50 per cent chance of job loss went up from 6.6 per cent in 2008 to 10.5 per cent in 2013 and went down to 5.2 per cent in 2018. The vast majority of answers were at the decile points, the 5-percentile points, and at 1 and 99 per cent. The proportion of respondents answering that the perceived likelihood of job loss is zero as well as the distribution of the responses

[4] As in the years 2014 and 2015 mental health was only administered once, i.e. in July and August 2015 (see 2.3.1), the job insecurity score for Oct/Nov 2014 and the mental health score for July/August 2015 were used as values for the year 2014, and the year 2015 was left out of the analyses. In this way the time lag between measurement of mental health and measurement of job insecurity in 2014/15 best resembled the time lag in other years.

over decile and 5-percentile points is quite similar to findings from similar surveys (e.g. Dickerson & Green, 2012).

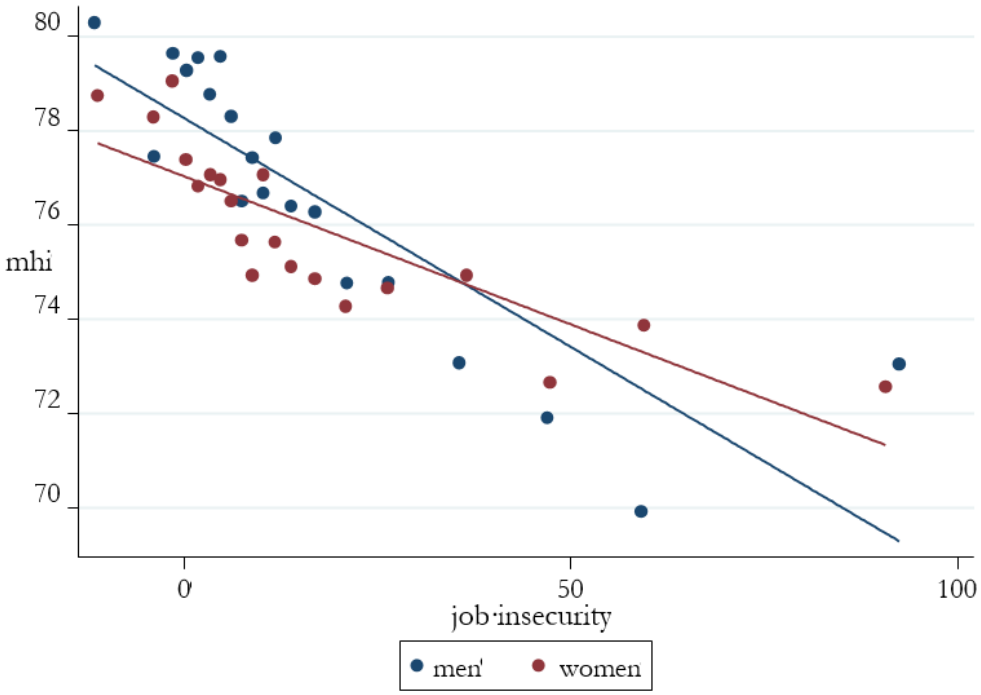
Figure 2.2. *Frequency distribution of perceived likelihood of job loss in the Netherlands of employees working at least 12 hours a week, in 2008, 2013, and 2018 (in per cent)*



Source: LISS data (own calculations based on the main analytical sample, see par. 2.3.3)

Figure 2.3 shows a binned scatterplot (see e.g. Cattaneo et al., 2019). The binned scatterpoints are somewhat dispersed around the regression line. For male respondents the dispersion is mainly due to one outlier: the bin to the right for male respondents seems an outlier to what is otherwise a solid linear relationship. This non-linearity will be addressed later in the robustness check.

Figure 2.3. *Binned scatterplot of mental health on job insecurity with control variables, OLS*



Source: LISS data

2.3.2.2 Predictive value of perceived likelihood of job loss

While it is the perception, right or wrong, of likelihood of job loss that is at the centre of our analysis, it is interesting to find out if this perception is a mere symptom in the mind or if it contains private information about the risk of job loss of respondents. To examine whether this is the case, we first determine the risk of subsequent job loss.

As voluntary and involuntary turnover are in practice hard to distinguish (e.g. Schwerdt, 2011), we consider as having lost their job during the year employees who at time *t* had a job and at time *t*+1 are either without a job or have another job. Thus, we determine the risk of job loss, that can be compared to the respondent's own prior assessment of the risk of job loss.

Table 2.1 shows that the respondents' individual assessment of the likelihood of job loss significantly predicts the risk of job loss in the subsequent year. The results of a pooled logit analysis in Column (1) confirm that the risk of job loss is higher for respondents who perceive a higher likelihood of job loss. The results of a fixed effects logit approach in Column (2) are only slightly different, indicating that little of the association found is due to unobserved factors (such as personality) influencing both the respondents' assessment of the continuity of the job and the real risk of job loss. Columns (3) and (4) present a similar analysis to Columns (1) and (2) but this time with control variables: sex, age, education level, tenure, hours work per week, public sector employment, temporary contract, and plant size. This analysis shows that not only is a respondent's assessment of the likelihood of job loss a significant predictor of subsequent job loss, it also provides private information in addition to objective factors that are known to influence job loss. Even after including objective factors that have been found to influence the risk of job loss (such as the type of contract), the perceived likelihood of job loss provides additional information on the subsequent risk of job loss.

Table 2.1. *Subsequent job loss within 12 months predicted from perceived likelihood of job loss and controls.*

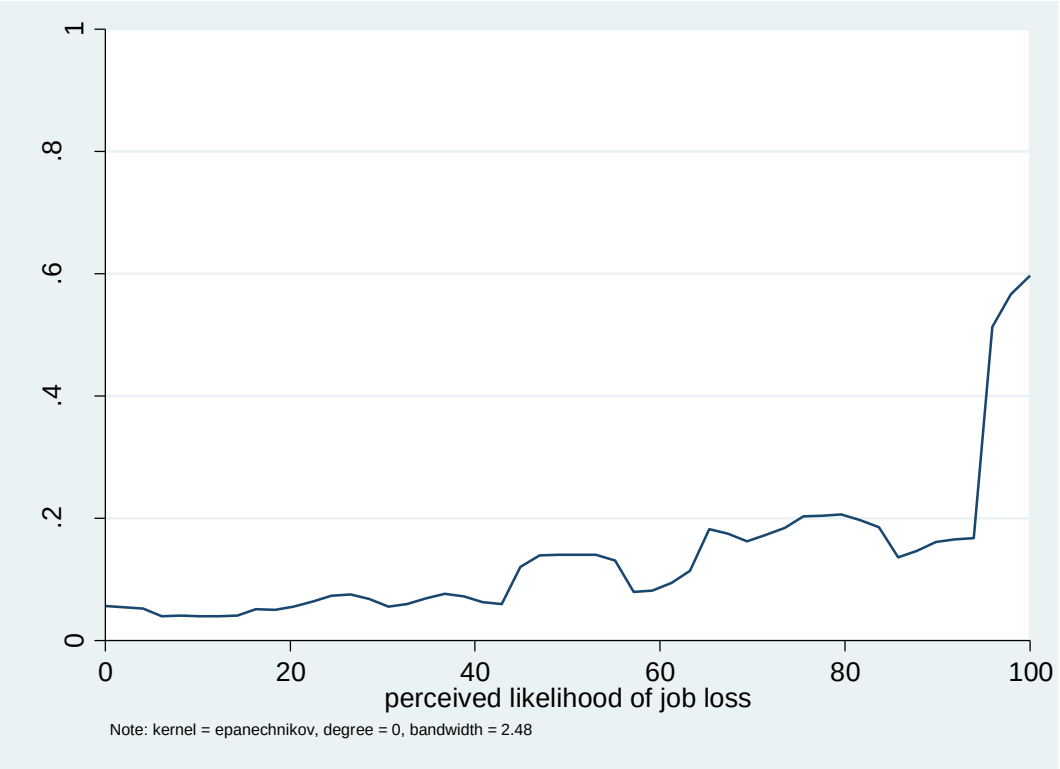
	logit	**FE logit**	**logit**	**FE logit**
perceived likelihood of job loss[a]	**0.0288*** **	**0.0260*** **	**0.0263*** **	**0.0247*** **
	(0.0013)	(0.0023)	(0.0014)	(0.0027)
control variables[1]	no	no	yes	yes
Observations	9,098	1,577	9,098	1,577
Number of individuals		420		420

[a] coefficient

Source: LISS data

Figure 2.4 shows that respondents who perceived a non-zero chance of job loss systematically overestimated the risk of losing their job. There seems to be an almost monotonically increasing relationship between the perceived chance of job loss and the actual risk of job loss. This relationship is especially at the higher end of the scale non-linear.

Figure 2.4. *Kernel-weighted local polynomial smoothing of actual probability of job loss for varying perceived likelihood of job loss (in per cent)*



Source: LISS data

2.3.3 Control variables

The LISS includes a section on background variables including the gender of the respondent, age, degree of urbanisation of area of residence, whether the respondent is living with a partner, educational level, income and financial situation. In order to capture higher-order age effects age squared is also included. Educational level is divided into three levels: low (including primary school and intermediate secondary (*vmbo*)), medium (including higher secondary (*havo/vwo*) and intermediate vocational (*mbo*)), and high (including higher vocational (*hbo*) and university (*wo*)). The financial situation is assessed by the natural log of personal net monthly income in euros.

Some explanatory variables are added because they help explain job insecurity: the number of hours actually worked per week on average, tenure (defined as the amount of time elapsed since entering into employment with the current employer), being an employee in temporary employment (or on-call employee or a temp-staffer), being employed in the public sector (government services, public administration, education, healthcare and welfare), a sector generally thought to have safer employment than the private sector, and working in a small establishment, i.e. one with less than 50 employees. In order to capture time trends and sector-specific effects, dummy variables are introduced for year and sector of employment.

Descriptive statistics are presented in Table 2.2.

Table 2.2. *Health, demographic and job-related characteristics of employees in the Netherlands working at least 12 hours a week*

	mean	sd	min	max
mental health	76.26	15.18	0	100
perceived likelihood of job loss	17.44	25.43	0	100
age	46.04	10.41	20	67
female	0.49	0.50	0	1
partner	0.75	0.43	0	1
area of residence not urban	0.14	0.35	0	1
area of residence slightly urban	0.20	0.40	0	1
area of residence moderately urban	0.24	0.43	0	1
area of residence very urban	0.28	0.45	0	1
area of residence extremely urban	0.14	0.35	0	1
low education	0.21	0.41	0	1
medium education	0.38	0.49	0	1
high education	0.41	0.49	1	6
net monthly income	€ 1,882	€ 796	€ 131	€ 10,000
temporary employment	0.07	0.26	0	1
public employment	0.43	0.49	0	1
tenure	13.12	10.88	0	50.67
hours per week	34.86	9.97	12	100

Note: descriptive statistics based on 13,256 obs
Source: LISS data

2.4 Estimation strategy

In order to investigate the effect of job insecurity on mental health outcomes we estimate:

$$MHI_{it} = a + v_{it}\psi + x'_{it}\beta + z'_{it}\gamma + \varkappa_s\eta + \tau_t\iota + c_i + u_{it},$$

where MHI_{it} is mental health for individual i at time t, a is the intercept, v_{it} is job insecurity for individual i at time t, ψ is the coefficient of job insecurity, x'_{it} is a 7-dimensional row vector of time-varying explanatory variables (personal characteristics including age[2], living with children in the household, net personal income; and job characteristics including temporary employment, tenure, employment in a small establishment, number of hours worked per week), β is a 7-dimensional column vector of coefficients of the time-varying explanatory variables, and z'_{it} is an 11-dimensional row vector of explanatory variables that show little or constant variation in time (personal characteristics including age, sex, living with a partner, dummies for education level, dummies for degree of urbanisation of area of residence), γ is an 11-dimensional column vector of coefficients of the time-nonvarying explanatory variables, τ_t are year dummies and $\varkappa_s$ sector dummies, η and ι are column vectors of parameters, c_i is an individual-specific effect, and u_{it} is an idiosyncratic error term.

We start with pooled ordinary least squares and cluster standard errors to correct for correlations across multiple observations for each individual. The estimated coefficients from pooled ordinary least squares are likely to be inconsistent, however, if independent variables are omitted that are correlated with the included independent variables. Although we included several variables to control for observed heterogeneity, a good deal of unobserved heterogeneity is likely to remain. Such unobserved characteristics could be dispositions, be they genetic, psychological or biological, that affect both mental health and perceived job insecurity. An optimistic disposition, e.g., has been found to affect mental health (see e.g. Conversano et al., 2010) and may also affect perceived job insecurity.

Such unobserved characteristics can be assumed to be time invariant, at least within a limited period of time. If we further assume strict exogeneity of the explanatory variables, then the fixed-effects method is capable of solving the endogeneity problem resulting from omitted variables bias. When fixed effects are taken into account, variables with limited within-variation (sex, degree of urbanisation of area of residence, living with a partner, education level, working on a temporary contract, working in the public sector, and working in a small establishment) are excluded from the estimation process.

2.5 Results

2.5.1 Main results

Pooled ordinary least squares estimates in Table 2.3 serve as a benchmark and for purposes of preliminary descriptive analysis. Consistent with cross-sectional studies, the results show a significant negative association between job insecurity and mental health. Respondents who perceive their job as secure are in better mental health than those who perceive their job as insecure. The size of the coefficient is high, also in comparison to the coefficients of control variables: a 34 per cent-point increase in job insecurity offsets the mental health benefits of living with a partner and requires an increase in net monthly income from €1,500 to €3,700 to be as well off. The coefficient is significant both for the male and the female subsample.

Table 2.3 shows that, when controlling for fixed effects, the coefficient of interest is markedly lower than with pooled ordinary least squares. It is somewhat larger than the effect found by Reichert and Tauchmann (2017) for Germany, and smaller than the effect found by Green (2011) for Australia. Furthermore, the effect is only statistically significant for the male subsample, not for the female subsample. This is consistent with Green's findings. The smaller coefficient for perceived job insecurity in fixed effects implies that individual unobserved characteristics determine to a large extent both the respondent's perceived likelihood of losing his/her job and the respondent's mental health (the differences between OLS and fixed effects are not due to differences in controls). These findings suggest that studies that do not address the issue of unobserved heterogeneity severely overestimate (i.e. by a factor 4 in the full sample) the effect of job insecurity on mental health. If part of the effect were attributable to reverse causality, i.e. a mental health deterioration causing an increase in perceived job insecurity, the effect found in the fixed effects model must be considered an upper bound of the causal effect. Note that these results are based on within-variation in job insecurity conditional on objective insecurity (as in Reichert & Tauchmann, 2017).

Table 2.3. *Estimated effects of job insecurity on mental health*

	OLS	**FE**	**OLS**	**FE**	**OLS**	**FE**
			men	**men**	**women**	**women**
perceived likelihood of job loss	**-0.0792*** **	**-0.0196*** **	**-0.0963*** **	**-0.0343*** **	**-0.0629*** **	-0.00602
	(0.0071)	(0.0060)	(0.010)	(0.0087)	(0.0099)	(0.0081)
living with partner	**2.71*** **		**2.38*** **		**2.65*** **	
	(0.56)		(0.83)		(0.76)	
age	-0.17		-0.056		-0.47*	
	(0.18)		(0.25)		(0.26)	
age2	0.0029	0.0025	0.0013	**0.0071** **	**0.0063** **	0.0001
	(0.002)	(0.002)	(0.003)	(0.0036)	(0.003)	(0.004)
living with children	0.86*	-0.74	-0.35	-1.196	**1.841** **	-0.0577
	(0.52)	(0.76)	(0.73)	(1.14)	(0.76)	(0.86)
log net income	**2.98*** **	0.31	**4.06*** **	-1.78	**3.17*** **	2.595*
	(0.70)	(1.15)	(1.12)	(1.30)	(0.97)	(1.55)
temporary employment	-0.279	0.365	1.436	1.287	-1.396	-0.716
	(0.696)	(0.633)	(1.037)	(0.870)	(0.935)	(0.896)
public employment	-1.199	-2.892	-1.479	0.180	**-6.137** **	-2.432
	(1.918)	(3.279)	(2.985)	(3.929)	(2.685)	(6.202)
small establishment	-0.525	-0.0009	-1.027*	-0.162	0.248	0.078
	(0.411)	(0.393)	(0.580)	(0.532)	(0.575)	(0.58)
hours work per week	0.0310	-0.0244	**0.126*** **	0.0422	-0.0732*	-0.112**
	(0.0280)	(0.031)	(0.0402)	(0.0423)	(0.0428)	(0.047)
tenure	0.028	**-0.099** **	0.031	-0.037	0.033	**-0.213*** **
	(0.0253)	(0.041)	(0.033)	(0.049)	(0.039)	(0.075)
slightly urban	-0.977		-1.533		-0.531	
	(0.783		(1.112)		(1.068)	
moderately urban	-0.914		-0.649		-1.100	
	(0.742)		(1.008)		(1.060)	
very urban	-0.782		-0.526		-1.067	
	(0.721)		(1.004)		(1.003)	
extremely urban	-1.027		-0.958		-0.754	
	(0.850)		(1.204)		(1.124)	
medium education	-0.121		-0.236		-0.163	
	(0.663)		(0.906)		(0.970)	
high education	0.281		-0.263		0.615	
	(0.723)		(0.997)		(1.060)	
Observations	13,256	13,256	6,797	6,797	6,459	6,459
R-squared	0.048	0.008	0.062	0.013	0.042	0.016
Number of individuals		3,803		1,882		1,921

Notes: Models include also other control variables (see par. 2.4). Cluster-robust standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.10$

Source: LISS data

2.5.2 Heterogeneous effects

The main results indicated a different effect for men and women. Such effect heterogeneity may not be limited to gender. Age might moderate the relationship between perceived job insecurity and mental health. Theoretically, the moderating effect of age is ambiguous, as on the one hand it becomes more difficult to find a new job beyond a certain age, while on the other hand more generous unemployment benefits for older workers may facilitate an early exit from the labour force (e.g. Baguelin & Remillon, 2014). Living with a partner might also moderate the relationship between perceived job insecurity and mental health for at least three reasons: having a partner may be related to having a different skill set, having a partner may help to cope emotionally with the stress of perceived job insecurity, and having a partner may offer an opportunity to pool resources. In the latter case, the moderating effect of living with a partner could be different for breadwinners and non-breadwinners. Education level might moderate the relationship between perceived job insecurity and mental health for two reasons: for employees with certain education levels it may be more difficult to find a new job than for others, and the social norm of having a job may be different for groups with different educational backgrounds. Finally, working on a permanent contract may moderate the relationship between perceived job insecurity and mental health, as employees on a permanent contract may be less inclined to expect their employment relation to end than employees on a temporary contract.

Table 2.4 presents only the coefficients of interest, i.e. the coefficients of perceived job insecurity as a main effect for various groups. There is a small difference in point estimate of the effect size between age groups, with those above 45 years of age seeming somewhat more afflicted by job insecurity than those below 45 years of age. For men, a more marked difference – and in the opposite direction – is found: men younger than 45 years of age appear to suffer a stronger mental health deterioration as a result of job insecurity than men above 45 years of age.

The gender difference that was found earlier does not appear to be due to women working less hours per week, which might be related to having less attachment to work. Although it is true that point estimates of the coefficient of interest increase with the number of hours worked per week, the gender difference is sizeable, in particular when limiting the analysis to all workers who work at least 32 hours per week.

The effect size of perceived likelihood of job loss on mental health is only slightly lower for employees living with a partner than for employees not living with a partner. This overall similarity masks a moderate difference between men not living with a partner and men living with a partner. And whereas between men and women not living with a partner there is no difference in effect size, between men and women living with a partner there is a difference in effect size: women living with a partner seem untroubled in the face of job insecurity, whereas men living with a partner suffer more than men without a partner.

For the latter, it does not appear to matter whether the men and women consider themselves head of the household or not: the effect size for men and women is similar, irrespective of their position within the household. When we look beyond their perceived position in the household and look at the share of the family income they earn, there are some differences. Women who are breadwinners (providing for more than two-thirds of the family income) are noticeably afflicted (looking at the point estimate, which is not statistically significant) whereas women who are not

Table 2.4. *Coefficient of perceived job insecurity by demographic and job-related characteristics in fixed effects estimation of mental health*

	FE	**FE men**	**FE women**
< 45 years of age	-0.0148	**-0.0463*** **	0.0111
	(0.0105)	(0.0170)	(0.0124)
	N=2,053	971	1,082
≥ 45 years of age	**-0.0220*** **	**-0.0269*** **	-0.0153
	(0.0075)	(0.0101)	(0.0113)
	N=2,131	1,117	1,014
works less than 32 hours per week	-0.0136	-0.0288	-0.0119
	(0.010)	(0.034)	(0.011)
	N=1,408	220	1,188
works 32 hours or more but less than 40 hours per week	-0.0188	-0.0324*	-0.0059
	(0.013)	(0.018)	(0.020)
	N=1,517	789	728
works 40 hours or more per week	**-0.0318*** **	**-0.0346*** **	-0.0045
	(0.010)	(0.010)	(0.030)
	N=1,828	1,344	484
no partner	-0.0231*	-0.0238	-0.0210
	(0.0123)	(0.0162)	(0.0180)
	N=1,058	472	586
with partner	**-0.0182*** **	**-0.0359*** **	-0.0006
	(0.0069)	(0.0100)	(0.0094)
	N=2,957	1,513	1,444
with partner, self-proclaimed head of household	**-0.0283*** **	**-0.0373*** **	0.0454
	(0.0101)	(0.0107)	(0.0253)
	N=1,707	1,366	341
with partner, self-proclaimed not head of household	-0.0083	-0.0331	-0.0075
	(0.0096)	(0.0280)	(0.0101)
	N=1,396	200	1,196
with partner, own income > 2/3 of household income	**-0.0270** **	**-0.0269** **	-0.0506
	(0.0130)	(0.0134)	(0.0426)
	N=805	728	77
with partner, own income < 2/3 of household income	-0.0144*	**-0.0404*** **	-0.0002
	(0.0083)	(0.0156)	(0.0095)
	N=2,505	1,095	1,410
primary and intermediate secondary education	-0.0072	-0.0105	0.0011
	(0.0127)	(0.0186)	(0.0178)
	N=844	427	417
higher secondary and intermediate vocational education	**-0.0253*** **	**-0.0503*** **	0.0009
	(0.0087)	(0.0130)	(0.0115)
	N=1,492	730	762
higher vocational and university education	**-0.0228** **	**-0.0312** **	-0.0173
	(0.0106)	(0.0140)	(0.0158)
	N=1,566	777	789
permanent contract	**-0.0211*** **	**-0.0344*** **	-0.0076
	(0.0065)	(0.0092)	(0.0092)
	N=3,542	1,775	1,767
temporary or flexible contract	0.0096	0.0010	0.0107
	(0.0199)	(0.0303)	(0.0255)
	N=611	251	360
net monthly income ≤ €1,650	-0.010	-0.020	-0.007
	(0.009)	(0.021)	(0.010)
	N=1,865	512	1,353
net monthly income > €1,650 and ≤ €2,650	**-0.021** **	**-0.032*** **	-0.003
	(0.009)	(0.011)	(0.016)
	N=2,029	1,255	774
net monthly income > €2,650	**-0.044*** **	**-0.052*** **	-0.012
	(0.016)	(0.018)	(0.035)
	N=630	493	137
of which: net monthly income > €3,000	**-0.060*** **	**-0.056*** **	-0.076
	(0.020)	(0.021)	(0.058)
	N=344	279	65

Notes: Models include control variables (see par. 2.4). Cluster-robust standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.10$

Source: LISS data

breadwinners are not afflicted at all. For men, this pattern is reversed: male breadwinners are less afflicted than men whose partner earns a sizeable part of the family income.

The effect of perceived likelihood of job loss on mental health is furthermore limited to employees with higher secondary, intermediate or higher vocational, or university education, and in particular male employees with such levels of education. Only for employees with a permanent employment contract a statistically significant effect is found, not for employees on temporary contracts. There is no subgroup of women for which a significant effect of perceived likelihood of job loss on mental health is found. These results seem to indicate that the resilience that people in general seem to have in the face of perceived job insecurity is not found in all of them. For some specific groups of male employees perceived job insecurity is disquieting.

What the groups that appear to have more trouble in dealing with job insecurity have in common is that they have higher incomes: men have higher incomes than women, men with partners have higher incomes than men without partners, men with a medium or high level of education have higher incomes than men with a low level of education, and men with a permanent contract have a higher income than men with a temporary contract. As an additional analysis we therefore checked to what extent the coefficient of job insecurity is different for different income groups. This analysis shows that the coefficient increases with income, up until €3,000 net per month in particular for men. Even after correcting for net income differences, the gender gap remains. It is only at income levels above €3,000 net per month that men as well as women appear strongly affected by job insecurity (although the female subsample is so small in this income group that the high point estimate for women is not statistically significant).

2.5.3 Robustness checks

It could be argued that some of the respondents who were job insecure in June/July, when the job insecurity item was administered, may have lost their job by November/December, when the mental health items were administered, and that the effect we found may thus be confounded by the effect of unemployment. In order to check for this possibility, we limited our analysis to those who still have a job in November/December. This hardly changed the coefficient of interest: -0.0198 instead of the -0.0196 found in the main analysis for the whole sample, -0.0367 instead of the -0.0343 found for men in the main analysis, and -0.0039 instead of the -0.0060 found for women in the main analysis.

The LISS panel contains another recurring item that captures an aspect of job insecurity. To check the robustness of the results we also performed the analysis for the item in the LISS Work & Schooling study "It is uncertain whether my job will continue to exist" with answer categories 1 = disagree entirely; 2 = disagree; 3 = agree; 4 = agree entirely."

Table 2.5 and Table 2.6 show that, when considering this ordinal variable as a continuous variable (Table 2.5) or dichotomizing it into a dummy variable (Table 2.6), an increase in being uncertain about the continuity of the job is in OLS associated with a decrease in mental health. When controlling for fixed effects, the results are qualitatively similar to those of the main analysis: the coefficient of interest is smaller in fixed effects than in pooled OLS, and no significant effect is found for women in the fixed effects analysis.

As another robustness check we performed the main analysis with all workers who satisfy the ILO definition of working at least 1 hour a week rather than with the subgroup that satisfies the Dutch national definition (at least 12 hours per week) only. The coefficient of perceived likelihood

of job loss on mental health remained stable (at least 12 hours per week: -0.0196; at last 1 hour a week: -0.0210 (0.0058)).

Table 2.5. *Estimated effects on mental health of extent of agreement with* It is uncertain whether my job will continue to exist.

	OLS	**FE**	**OLS men**	**FE men**	**OLS women**	**FE women**
four levels of agreement	**-2.769*** **	-0.330*	**-3.108*** **	**-0.622** **	**-2.364*** **	-0.0624
with uncertain job	(0.230)	(0.185)	(0.328)	(0.244)	(0.315)	(0.277)
control variables	yes	yes	yes	yes	yes	yes
Observations	13,186	13,186	6,767	6,767	6,419	6,419
R-squared	0.052	0.007	0.064	0.0094	0.046	0.016
Number of individuals		3,794		1,879		1,915

Notes: Models include control variables (see par. 2.4). Cluster-robust standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.10$

Source: LISS data

Table 2.6. *Estimated effects on mental health of extent of agreement with* It is uncertain whether my job will continue to exist.

	OLS	**FE**	**OLS men**	**FE men**	**OLS women**	**FE women**
dummy agree or agree entirely	**-4.099*** **	-0.413	**-4.658*** **	**-0.859** **	**-3.410*** **	0.0074
	(0.400)	(0.315)	(0.570)	(0.425)	(0.552)	(0.469)
control variables	yes	yes	yes	yes	yes	yes
Observations	13,186	13,186	6,767	6,767	6,419	6,419
R-squared	0.047	0.007	0.058	0.009	0.041	0.016
Number of individuals		3,794		1,879		1,915

Notes: Models include control variables (see par. 2.4). Cluster-robust standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.10$

Source: LISS data

Finally, to test non-linearity in the relationship between perceived likelihood of job loss and mental health, dummy variables were created for various classes (intervals) of perceived likelihood of job loss. The results suggest non-linear effects. Table 2.7 shows that crossing 10 per cent, 40 per cent, 60 per cent, and 90 per cent perceived likelihood of job loss is strongly associated with a deterioration in mental health. Interestingly, being certain of job loss (100 per cent) seems to give some relief. This could reflect that being certain of what is going to happen is less stressful than living with uncertainty, or it could be that the respondents held a temporary position and did not experience a shock when it ended, or respondents may be certain of the end of their current job as they have found a new one.

Table 2.7. *Estimated effects on mental health by classes of perceived likelihood of job loss.*

perceived likelihood of job loss:	**FE**	**FE**	**FE**
base category: = 0%		**men**	**women**
> 9%	**-0.755****	-0.506	**-1.110****
	(0.357)	(0.468)	(0.547)
> 19%	0.072	0.015	0.138
	(0.441)	(0.573)	(0.686)
> 29%	-0.199	-0.215	-0.177
	(0.628)	(0.837)	(0.952)
> 39%	-0.735	-1.700	0.671
	(1.270)	(1.688)	(1.935)
> 49%	0.328	0.484	-0.424
	(1.242)	(1.671)	(1.878)
> 59%	-0.455	**-4.463****	**3.670****
	(1.354)	(2.157)	(1.498)
> 69%	-0.087	2.683	-2.935
	(1.700)	(2.570)	(1.996)
> 79%	0.197	-0.491	1.339
	(1.356)	(1.799)	(1.903)
> 89%	-0.632	0.182	-1.729
	(1.408)	(2.307)	(1.734)
> 99%	0.756	2.701	-1.267
	(1.361)	(2.195)	(1.714)
control variables	yes	yes	yes
Observations	13,256	6,797	6,459
R-squared	0.0085	0.016	0.019
Number of individuals	3,803	1,882	1,921

Notes: Models include control variables (see par. 2.4). Cluster-robust standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.10$

Source: LISS data

2.6 Conclusion and discussion

We estimate the effect of perceived job insecurity on mental health using data from the Netherlands for 2008-2018. Fixed effect estimation of the effect of perceived job insecurity on mental health indicates a rather small effect, comparable to the impact of the death of a parent to an adult[5]. The effect size is robust to different operationalisations of perceived job insecurity. It is somewhat larger than the effect found by Reichert and Tauchmann (2017) for Germany, and smaller than the effect found by Green (2011) for Australia. If part of the effect were attributable to reverse causality, the

[5] The average detrimental effect of an increase in job insecurity from 0 to 100 is about 2 points on a mental health scale of 0 to 100. For comparison: death of a parent decreases mental health by 1.1 points, while being diagnosed with cancer decreases mental health by 7.2 points and separation from a partner by 8.8 points.

causal effect of job insecurity on mental health must be smaller than the effect found in the fixed effects model.

A possible explanation for the difference in effect size between the Netherlands and Germany on the one hand and Australia on the other is the time gap between measurement of perceived job insecurity and mental health. In Australia the two items are administered simultaneously, in the Netherlands perceived job insecurity is measured five months prior to mental health measurement, and in Germany perceived job insecurity is measured a full year prior to mental health measurement. It is likely that the effect of job insecurity on mental health is strongest whenever job insecurity is perceived and wears off with time. In that case, our figure may be a lower bound of the immediate effect, as the effect may have partly worn off.

The mean effect of perceived job insecurity on mental health may be rather small, but some groups have clearly more trouble than others in dealing with perceived job insecurity. For men, a significant detrimental effect of perceived job insecurity on mental health is found, while no such effect has been found for women. This confirms findings for Australia (Green, 2011). Possibly the social norm of having paid employment is stronger for men (e.g. Clark, 2003). There are no indications that the gender effect is due to women working less hours per week. Nor are there indications in our results that men are particularly afflicted due to their breadwinnership. On the contrary, it appears that men whose partner provides for a sizeable share of the family income suffer more when confronted with job insecurity than men who are breadwinners. Possibly it causes more anxiety for men to become dependent on the partner's income than merely not being able to cater for the family. In addition, negative effects of perceived job insecurity on mental health are found predominantly among men with intermediate levels of education and, to a lesser extent, among men with higher levels of education. A possible explanation is that for men with intermediate levels of education the chances of finding a (similar) new job on a polarized labour market (e.g. Goos et al., 2014) are smaller than for other groups. That would be in line with findings by Green (2011) that suggest that employability moderates the effect of perceived job insecurity on mental health. Negative effects of perceived job insecurity on mental health are found among men with permanent contracts only. These permanent contracts may have prompted an expectation of continuity of the employment relation, and the perceived job insecurity may be felt as breach of a psychological contract (e.g. De Cuyper & De Witte, 2007). Finally, negative effects of job insecurity increase with income. There is no other group in our study for which the detrimental mental health effect of job insecurity is larger than for men and women with a net monthly income of €3,000. This can be due to a cap in unemployment benefits (*'maximum dagloon'*), effectively lowering the replacement rate beyond this income level. It can also be due to insecurity about the possibility of finding a job with a similar income.

It appears that, contrary to popular belief, most people are rather resilient in the face of perceived job insecurity. Although flexible labour markets and a recession have stricken workers with more job insecurity over the last few years, in general the effects on mental health appear to be limited. Detrimental effects of perceived job insecurity on mental health are, however, found in particular groups of workers. Groups with more socioeconomic status and likely less experience with life's insecurities are at higher risk, or, as the expression goes: "the bigger they come, the harder they fall". Groups at risk are men, especially men with a partner, with a medium or high level of education, and with a permanent contract, and both men and women with high incomes. Companies that are downsizing and unions should be aware of the noxious effect of job insecurity on these

groups and consider offering counselling to those who have trouble coping. Governments should organize unemployment benefits with replacement rates that offer sufficient protection against income loss and also pay attention to the labour market perspectives of these groups, as their lack of perspective after job loss may fuel their distress. Improving their employability may help avoid them getting in a vicious circle of labour market insecurity and mental health deterioration, eventually alienating them from the labour market and possibly from society.

Chapter 3

'No manner of hurt was found upon him'. The role of religiousness in the mental health effect of job insecurity[6]

Abstract

In defiance of the secularization thesis, religiousness remains important in society. One plausible reason is that religiousness can function as a buffer against adversity. This chapter investigates the role of religiousness in the mental health effects of job insecurity. Data are from a panel data set on a representative sample of Dutch employees from 2008-2018. We use a fixed effects estimator to control for unobserved time-invariant individual and job characteristics. We find that religious employees are shielded from the adverse mental health effects of job insecurity, despite being more at risk than non-religious employees due to a higher work ethic. This effect is not driven by reverse causality of religiousness. The insulating effect of religiousness seems to be different between Catholics and Protestants: Protestant employees, despite being at risk due to a higher work ethic, are shielded from the adverse mental health effects of job insecurity, whereas Catholic employees are not. The social network that religiousness is said to provide appears not to be responsible for the buffering role of religiousness. The mechanism at work appears to be a firm belief in God, as well as belief in life after death, in combination with frequent attendance of religious gatherings. Unlike belief in God's existence, which shields only the religious, and in particular the Protestants among them, belief in life afteetr death shields the religious and non-religious alike. The confluence of increasing job insecurity and increasing secularisation poses a risk to public mental health. Our results contribute to identifying those who are particularly at risk and could, by shedding light on the mechanisms, suggest directions for potential preventive and curative interventions.

Keywords: Job insecurity; mental health, labour market dynamics; panel data; religiousness; spirituality; belief in life after death; Netherlands.

[6] An earlier version of this chapter was presented at the 28th EAEPE Annual Conference in Manchester (UK) and at the 31st ESPE Annual Conference in Glasgow (UK).

3.1 Introduction

Great thinkers in the 19th century – Marx, Weber and Freud – argued that, as society would advance in modernity and rationality, religion was going to recede. Many social scientists were convinced that "the sacred shall disappear altogether except, possibly, in the private realm" (Wright Mills, 1959). Yet, churchgoing and belief in God are still very popular in the US, lower rates of churchgoing in Western Europe are partly compensated for by increased popularity of New Age spirituality, there is a global resurgence in Islamic fundamentalism, and an evangelical revival in Latin America (Norris & Inglehart, 2004). There seems to be no linear secular trend; religiousness and spirituality remain important. Some conjecture that religiousness is driven by exposure to physical, societal and personal risks (Norris & Inglehart, 2004): as long as such risks exist, religiousness will exist. The economic realm may be a source of such risks.

The interplay of an economic crisis, rapid transformations in economic structure, and more flexible labour markets have caused many to doubt the continuity of their job. Such job insecurity has detrimental effects on mental health (Green, 2011; see also chapter 2 of this dissertation). The effect is not homogeneous, however; some groups suffer a larger mental health deterioration when faced with job insecurity than others: men are more affected than women; employees with intermediate levels of education are more affected than employees with lower or higher levels of education; employees with good employability are less affected than employees with bad employability; and employees on permanent contracts are more affected than employees on temporary contracts (Green, 2011; see also chapter 2 of this dissertation). The impact may also differ by level of religiousness.

Theoretically the role of religiousness could go either way: buffer or burden. Religiousness could act as a buffer if it is a resource from which the individual can draw in times of adversity or if it makes job insecurity less stressful to those whose identities are defined less by the job they hold and more by their religiousness. On the other hand, religiousness could act as a burden if it places additional demands on the individual and his work. This could be the case when individuals view their work as a sacred vocation or if they view adversity as a tribulation or punishment inflicted on them by their God.

This chapter investigates the role of religiousness in the mental health effect of perceived job insecurity using Dutch panel data. It considers not only the average moderating effect of religiousness, but also potential effect heterogeneity between men and women. Subsequently it investigates heterogeneity in moderating effects of various denominations. Lastly it explores what the active constituent of religiousness or membership of certain denominations is.

This chapter contributes to the literature on the mental health effects of job insecurity and the literature on the potentially buffering role of religiousness when confronted with stress. Empirically little is known about the role of religiousness in the mental health effects of job insecurity. This chapter is the first to analyse longitudinally and with a representative, large sample whether religiousness acts as a buffer or a burden to mental health when employees perceive job insecurity. By exploring if there is heterogeneity in the moderating effect of different denominations it helps determine if all religions buffer (or burden) to the same extent. As a corollary it might help narrow down the group of employees at a mental health risk from job insecurity. Furthermore, it examines mechanisms by which religiousness may act on the relationship between job insecurity and mental health, including afterlife beliefs. If, by this analysis, the active constituent(s) of religiousness

or membership of certain denominations can be isolated, the scope for preventive or curative interventions may be enhanced.

3.2 Definitions and empirical evidence

3.2.1 Job insecurity

Job insecurity has been conceptualized in various ways, but a common element is the "perception of a potential threat to the continuity of the current job" (Heany et al., 1994). Klandermans and Van Vuuren (1999) called this "perceived job insecurity", to distinguish it from objective job insecurity, which is the actual risk to the continuity of the current job. The perception of job insecurity is a personal one, and the perceived threat may be real or imaginary. Borg and Elizur (1992) further distinguished between "cognitive job insecurity" and "affective job insecurity": whereas cognitive job insecurity refers to the perception of a threat to employment continuity, affective job insecurity refers to the affective response to this perception.

Job insecurity may be harmful to mental health because job loss is found to be a stressor (Hobson et al., 1998), and the anticipation of a stressor can have a similar effect to the stressor itself (Lazarus & Folkman, 1984).

3.2.2 Religiousness

Definitions of religiousness are diverse. Most definitions "include both personal beliefs, such as a belief in God or a higher power, and organizational or institutional beliefs and practices such as church membership, church attendance, and commitment to the belief system of a church or organized religion" (Zinnbauer et al., 1997).

Religiousness may have a positive impact on the mental health effect of job insecurity for various reasons (Ellison & Levin, 1998): religiousness fosters practices such as prayer or meditation that are conducive to positive mental health outcomes; tasking conditions may be reappraised by beliefs concerning divine control, being part of some divine plan, or opportunities for spiritual growth rather than as challenges to one's identity or mental stability; religiousness may foster positive emotions that promote positive mental health outcomes; religiousness may promote psychological resources that are favourable to positive mental health outcomes; experiencing a relationship with a divine other may bolster feelings of self-esteem and control and thus enhance confidence in one's ability to overcome the difficulties that job insecurity and potential job loss may bring; religiousness can provide social support that fosters positive mental health outcomes; and religiousness may promote health behaviours and lifestyles that contribute to positive mental health outcomes.

Religiousness may also have a negative impact on the mental health outcome from job insecurity: job insecurity might bring about religious doubts or the feeling of being abandoned by God, which may be detrimental to mental health; failing to meet religious standards or the standards of one's religious community may lead to feelings of guilt and shame, feelings that may be harmful to mental health.

3.2.3 Denominations

This study focuses on the role of religiousness in the Netherlands, where Catholicism and Protestantism are the two largest religious denominations. In Catholicism the Pope, the leader of the church, is the representative of God on earth. The Catholic church has authority to teach the faith. In prayer, Mary, angels and saints can be invoked to intercede for men with God. Protestants reject the primacy of the Pope and consider the Bible as the sole source of divine revelation. According to Protestants every human being has a direct relation with God. Hence, in Protestantism "each individual determines on his own what is right" (Stulz & Williamson, 2003).

According to Calvin, a Protestant thinker who influenced Dutch Protestantism, God has predestined some people to be saved and others to be damned. Unlike in Catholicism, salvation is by faith alone (and not as in Catholicism also by one's works), so one's eternal destiny is impossible to know and impossible to influence. This seems to provide weak incentives to work. However, Protestants came to regard personal diligence, frugality, and material success as signals that one was among the chosen. Hence Protestants seem to have a "greater sense of individual responsibility" and "are more inclined to believe that people in need are lazy and lack will power" (Guiso et al., 2003). Weber (1930) claimed that, unlike Catholicism in which denial of the worldly was the path to salvation, Protestantism came to view work as a divine calling, so that working diligently in one's worldly occupation became a duty, the highest form of moral activity. Consequently, Weber attributed to Protestants a stronger work ethic than to Catholics. Considering economic success as a sign of being chosen, viewing work as a divine calling, in combination with a stronger work ethic might make Protestants more vulnerable for mental health deterioration in the face of job insecurity.

3.2.4 Empirical evidence

Empirically little is known about the role of religiousness in the mental health effects of job insecurity. Schreurs et al. (2014) investigated the moderating effect of religiousness in the relationship between job insecurity and burnout. Using cross-section data from a non-random sample of 238 Dutch employees and employing structural equations modelling they found a positive interaction effect between perceived job insecurity and religiousness, from which they concluded that religiousness acts more as a burden than as a buffer. Clark and Lelkes (2005) investigated the moderating effect of religious activity (both churchgoing and prayer) in the relationship between unemployment and life satisfaction. Using European cross-section data on 22,627 individuals and employing ordered logit regressions, they found a negative interaction effect between unemployment and religous activity: the negative effect on life satisfaction from unemployment is only half as large for those who consider themselves Catholic or Protestant. Replicating the methodology by using two waves of British panel data and employing fixed effects modelling did not yield any significant results. Lechner and Leopold (2015) investigated the moderating effect of religious attendance in the relationship between job loss and life satisfaction. Using German SOEP panel data on 5,446 individuals and employing fixed effects modelling they found that higher frequency of religious attendance was associated with a smaller negative effect on life satisfaction.

Some authors found that unemployment hurts Protestants' well-being more than Catholics' and concluded from this that a Protestant work ethic exists (Hoorn & Maseland, 2013), others failed

to find a moderating effect from a Protestant work ethic on the relationship between unemployment and depression or anxiety on the other (Shamir, 1986).

3.3 Data and descriptive statistics

3.3.1 Data

Data are from the LISS (Longitudinal Internet Studies for the Social sciences) panel administered by CentERdata (Tilburg University, The Netherlands; Centerdata, n.d.; Scherpenzeel, 2011). The LISS panel is a representative sample of Dutch individuals who participate in monthly Internet surveys. The panel is based on a true probability sample of households drawn from the population register. A longitudinal survey is fielded in the panel every year, covering a large variety of domains including work, education, income, housing, time use, political views, values and personality. For this chapter we use data from 2008-2018.

For the purposes of these analyses only employees in permanent or temporary employment, on-call employees or temp-staffers are considered; self-employed/freelance employees, independent professionals, directors of limited liability companies or majority shareholder directors are filtered out. The analysis is limited to employees who work at least 12 hours a week. In the robustness check in chapter 2 this limitation turned out inconsequential for sign or size of the effect.

The dependent variable is the MHI-5. With five items - yet good psychometric properties and validity (see e.g. Rumpf et al., 2001; Strand et al., 2003; Thorsen et al., 2013) - it covers two major mental health dimensions: anxiety and depression. Its scale runs from 0 to 100, with higher scores indicating better mental health.

The main independent variable is the answer to the question "Do you think that there is any chance that you might lose your job in the coming 12 months? You can indicate this in terms of a percentage. 0% means that you are sure you will not lose your job, and 100% means that you are sure that you will lose your job". This item was as of 2010 only administered to heads of households and partners. It was administered every June/July. More information on data and measurement can be found in chapter 2. In chapter 2 we showed that this item is an important predictor of subsequent job loss.

In order not to confound any effect of perceived job insecurity on mental health with an effect of unemployment on mental health, our analysis is limited to those who still have a job in December, when the Health study is administered from which the dependent variable is taken.

Another central independent variable is religiousness. Religiousness is measured by the item "Do you consider yourself a member of a certain religion or church community?" The response to this item is either a "yes", a "no" or "I don't know".

Respondents are considered Catholic if they tick "Roman Catholic" when asked "Of which religion or church community are you a member?" Respondents who tick either "Protestant Church in the Netherlands", "Dutch Reformed" or "Reformed Churches in the Netherlands" are considered Protestant.

3.3.2 Descriptive statistics

Table 1 shows that religious employees account for slightly less than a third of total respondents. The proportion of Catholic employees is 17 per cent and the proportion Protestant employees 12 per cent. Women are more likely to consider themselves religious than men, and this is even more true in the Catholic and Protestant denominations. The religious are slightly older than the non-religious. There is no noticeable difference in education level between the groups. The level of mental health does not differ between groups.

Religious employees perceive less job insecurity than non-religious employees. The difference in perceived job insecurity between Protestant and Catholic employees is not significant, nor is the change (in time) in perceived job insecurity between groups. The rank order of levels of perceived job insecurity between the different groups reflects the actual patterns of job loss and change in the subsequent year: with one exception, the lower the perceived level of job insecurity, the lower also the actual level of job loss and change in the subsequent year.

Table 3.1. *Demographic and job-related characteristics for all and by religiousness and denomination*

	all	**non-religious**	**religious**	**Catholic**	**Protestant**
number of respondents	12,533	8,376	4,157	2,128	1,538
% female	48.7	47.6	50.7	51.3	52.4
age	46.2	45.6	47.4	48.6	47.2
% low education	21.0	20.3	22.3	23.4	21.3
% mid education	38.0	38.9	36.1	35.0	36.2
% high education	41.0	40.7	41.5	41.6	42.5
job insecurity; mean (sd)	17.33	17.32	16.55	16.67	15.39
	(25.38)	(25.56)	(25.01)	(25.40)	(23.81)
mental health; mean (sd)	76.37	76.32	76.45	76.88	76.76
	(15.15)	(15.23)	(14.99)	(15.28)	(14.36)
agriculture/mining	1.5%	1.1%	2.3%	2.2%	2.7%
manufacturing/utilities	12.2%	12.1%	12.6%	13.9%	10.0%
construction	4.3%	4.4%	4.0%	3.7%	5.3%
retail	6.8%	6.8%	6.9%	6.7%	7.9%
catering	1.9%	1.8%	2.2%	2.4%	1.4%
transport/storage/communications	4.9%	6.0%	2.7%	3.2%	2.5%
financial/business services	11.2%	12.3%	9.1%	9.3%	9.0%
government	11.6%	12.3%	10.2%	9.7%	10.3%
education	10.4%	8.5%	14.2%	13.6%	16.3%
health care	20.8%	18.6%	25.2%	24.7%	25.9%
environmental/culture/recreation	2.0%	2.5%	1.1%	0.7%	1.9%
other	12.3%	13.8%	9.5%	10.0%	7.0%
net income in euro per month (1)	€ 1.882	€ 1.900	€ 1.846	€ 1.863	€ 1.827
hours worked per week	34.8	35.2	34.2	34.0	34.1
temporary contract	7.2%	7.6%	6.5%	4.9%	6.6%

(1) for 3 respondents who evidently misplaced decimal points income data were divided by 100

Source: LISS data

Religious employees are underrepresented in transport, financial and business services, and government, and overrepresented in agriculture, education, and health care, suggesting some selection into jobs. There is no difference in net income between religious and non-religious employees, nor between Catholic and Protestant employees. Religious employees work less often than non-religious employees on a temporary contract. This result is especially strong for Catholic employees.

Religious and non-religious employees differ significantly in the number of hours worked per week: the religious work 34.2 hrs per week, the non-religious 35.2 hrs per week. Catholic and Protestant employees work on average around 34 hrs per week. This is mainly due to female (part-time) working hours. Male religious employees work as many hours per week as male non-religious employees.

3.4 Estimation strategy

We start with pooled ordinary least squares (OLS) and correct standard errors for correlations across multiple observations for each individual. In this OLS analysis we include an interaction term between job insecurity and religiousness to determine if being religious matters for the effect of job insecurity on mental health. In order to investigate the effect of job insecurity on mental health outcomes we estimate with OLS:

$$MHI_{it} = a + v_{it}\psi + v_{it}\Omega_{it}\omega + \Omega_{it}\chi + x'_{it}\beta + \Omega_{it}x'_{it}\zeta + z'_{it}\gamma + \Omega_{it}z'_{it}\varsigma + \varkappa_s\eta + \Omega_{it}\varkappa_s\theta + \tau_t\iota + u_{it},$$

where MHI_{it} is mental health for individual i at time t, α is the intercept, v_{it} is job insecurity for individual i at time t, ψ is the coefficient of job insecurity, Ωit is the religiousness (dummy) score for individual i at time t, ω is the coefficient of the interaction between job insecurity and religiousness, χ is the coefficient of the main effect of religiousness, x'_{it} is a 7-dimensional row vector of time-varying explanatory variables (personal characteristics including age^2, living with children in the household, net personal income; and job characteristics including temporary employment, tenure, employment in a small establishment, number of hours worked per week), β is a 7-dimensional column vector of coefficients of the time-varying explanatory variables, ζ is a 7-dimensional column vector of coefficients of the interaction between religiousness score and time-varying explanatory variables (as we do not *a priori* assume that the effect of these variables on mental health is the same for the religious and the non-religious alike) and z_{it} is an 11-dimensional row vector of explanatory variables that show little or constant variation in time (personal characteristics including age, living with a partner, dummies for education level, dummies for degree of urbanisation of area of residence), γ is an 11-dimensional column vector of coefficients of the time-nonvarying explanatory variables, ς is an 11-dimensional column vector of coefficients of the interaction between religiousness score and time-nonvarying explanatory variables (again, as we do not *a priori* assume that the effect of these variables on mental health is the same for the religious and the non-religious alike), τ_t are year dummies and $\varkappa_s$ sector dummies, η, θ and ι are column vectors of parameters, and u_{it} is an idiosyncratic error term.

Subsequently we employ a fixed effects estimator in order to exploit within-variation only. Although several variables to control for observed heterogeneity are included, a good deal of unobserved heterogeneity is likely to remain. Such unobserved characteristics could be dispositions,

be they genetic, psychological or biological, that affect both mental health and perceived job insecurity. An optimistic disposition, e.g. has been found to affect mental health (see e.g. Conversano et al., 2010) and may also affect perceived job insecurity. Omitted variables could lead to inconsistent estimates if not properly accounted for. Unobserved characteristics may be assumed to be time invariant, at least within a limited period of time. If we further assume strict exogeneity of the explanatory variables, then the fixed-effects method is capable of solving the endogeneity problem resulting from omitted variables bias.

The purpose of the analysis is to establish if ψ, the coefficient of job insecurity, differs between groups. To that end we subject various subsamples to a similar fixed-effects analysis and compare the estimate of ψ found. Including an interaction term of job insecurity and religiousness in a fixed-effects analysis would not be appropriate, as this would contaminate within-variation in job insecurity with within-variation in group membership. Such within-variation in group membership is rare and may in part be due to measurement error. Therefore, we subsequently estimate in fixed effects for various subsamples:

$$MHI_{it} = a + v_{it}\psi + x'_{it}\beta + \varkappa_s\eta + \tau_t\iota + c_i + u_{it},$$

where c_i is an individual-specific effect.

First, we compare the subsamples of religious and non-religious employees. We are aware that being religious may be endogenous, e.g. if an increase in job insecurity fosters feelings of religiousness in people; or if an employee abandons his religion as he becomes aware that his religion does not prevent him from job insecurity. Whereas own religiousness may be endogenous, the respondent's parents' religiousness when the respondent was young is not. In a second analysis we therefore compare estimates of ψ for the subsamples of respondents whose parents were not religious when the respondent was 15 years of age and respondents whose parents were religious at that age. In the third analysis we compare estimates of ψ for the Protestant and Catholic subsamples to establish whether Protestantism, as we hypothesized, exacerbates the mental health effect of job insecurity. In further analyses we investigate to what extent it is the parent's religion or one's own religion that influences the mental health effect of job insecurity and we compare subsamples according to frequency of attendance of religious gatherings as an alternative measure of current attachment to a religion or church community.

3.5 Results

3.5.1 Main results for religiousness

Pooled OLS estimates in Table 3.2 serve as a benchmark and for purposes of preliminary descriptive analysis. They show that respondents who perceive their job as secure are in better mental health than those who perceive their job as insecure. There appears to be no significant interaction effect between job insecurity and religiousness on mental health.

Table 3.2. *Estimated effects of job insecurity on mental health, all respondents and by religiousness*

	all				**men**				**women**			
	OLS	**FE**	**FE**	**FE**	**OLS**	**FE**	**FE**	**FE**	**OLS**	**FE**	**FE**	**FE**
		all	non-religious	religious		all	non-religious	religious		all	non-religious	religious
perceived likelihood of job loss	**-0.0800*** **	**-0.0221*** **	**-0.0269*** **	-0.0171	**-0.103*** **	**-0.0343*** **	**-0.0442*** **	-0.0126	**-0.0554*** **	-0.0112	-0.0101	-0.0201
	(0.0088)	(0.0061)	(0.0078)	(0.0098)	(0.0124)	(0.0091)	(0.0115)	(0.0142)	(0.0124)	(0.0082)	(0.0100)	(0.0135)
religious	-0.237				-0.638				+0.124			
	(0.511)				(0.731)				(0.714)			
religious x perceived likelihood of job loss	+0.0037				+0.023				-0.021			
	(0.0149)				(0.021)				(0.020)			
living with partner	**2.726*** **				**2.441*** **				**+2.629*** **			
	(0.570)				(0.837)				(0.781)			
age	-0.129				+0.034				-0.479			
	(0.185)				(0.256)				(0.269)			
age2	-0.0024	+0.0026	+0.0014	+0.0045	+0.0003	+0.0065	+0.0032	+0.0099	**+0.0064** *	+0.0010	+0.0017	+0.0007
	(0.0021)	(0.0023)	(0.0028)	(0.0046)	(0.0029)	(0.0036)	(0.0045)	(0.0057)	(0.0030)	(0.0036)	(0.0039)	(0.0064)
living with children	0.901	-0.946	-1.948	+0.863	-0.319	-1.518	**-2.951** *	+0.198	+1.925	-0.098	-0.737	+1.686
	(0.534)	(0.771)	(0.999)	-1.043	(0.738)	-1.161	-1.501	(1.296)	(0.786)	(0.874)	-1.130	-1.665
log net income	**3.133*** **	0.710	+1.874	-0.145	**+4.208*** **	-1.900	-2.609	-1.314	**+3.219*** **	**+3.328** *	**+4.495** *	+1.123
	(0.715)	(1.181)	-1.627	-1.263	-1.142	-1.256	-2.255	(1.472)	(0.984)	-1.526	-1.920	-2.082
temporary employment	-0.150	0.788	+0.484	+0.405	+1.627	1.670	+1.223	+1.919	-1.388	-0.258	-0.828	-1.497
	(0.726)	(0.648)	(0.759)	-1.164	-1.077	(0.895)	-1.103	-1.711	(0.972)	(0.926)	-1.059	-1.650
public employment	-0.476	-2.641	-1.725	-6.870	-0.060	-0.667	+3.540	-5.437	-1.122	-1.677	+5.106	+9.448
	(0.837)	-2.921	-3.546	-4.545	-1.667	-4.479	-4.155	(4.398)	-1.024	(5.837)	(3.483)	(5.381)
small establishment	-0.436	-0.053	-0.945	**1.989*** **	-1.010	-0.420	-0.668	+0.768	+0.461	+0.225	**-1.355** *	**3.036*** **
	(0.424)	(0.407)	(0.500)	(0.720)	(0.596)	(0.551)	(0.717)	(0.868)	(0.595)	(0.599)	(0.683)	-1.102
hours work per week	+0.033	-0.034	-0.068	+0.064	**0.124*** **	+0.032	+0.0006	+0.097	-0.067	**-0.123** *	**-0.140** *	+0.026
	(0.029)	(0.032)	(0.039)	(0.057)	(0.041)	(0.043)	(0.051)	(0.084)	(0.044)	(0.048)	(0.060)	(0.081)
tenure	+0.027	-0.101	**-0.124** *	-0.035	0.033	-0.045	-0.027	-0.075	+0.028	**-0.209*** **	**-0.306*** **	+0.008
	(0.026)	(0.041)	(0.053)	(0.065)	(0.034)	(0.049)	(0.064)	(0.073)	(0.040)	(0.077)	(0.086)	(0.116)
slightly urban	-1.067				-1.553				-0.717			
	(0.0795)				-1.121				-1.095			
moderately urban	–1.110				-0.900				-1.284			
	(0.759)				-1.022				-1.097			
very urban	-0.840				-0.650				-1.157			
	(0.738)				-1.017				-1.036			
extremely urban	-1.252				-1.340				-0.864			
	(0.870)				-1.225				-1.161			
medium education	-0.149				-0.162				-0.305			
	(0.680)				(0.920)				-1.002			
high education	0.331				-0.174				+0.624			
	(0.741)				-1.018				-1.093			
Observations	12,533	12,533	8,376	4,157	6,435	6,435	4,386	2,049	6,098	6,098	3,990	2,108
R-squared	0.0499	0.0099	0.0155	0.0235	0.0645	0.0147	0.0210	0.0200	0.0433	0.0178	0.0320	0.0465
Number of individuals		3,645	2,658	1,410		1,808	1,326	696		1,837	1,332	714

Notes: Models include control variables (see par. 3.4). Coefficients for interaction terms with control variables in OLS (see par. 3.4) are not presented. Cluster-robust standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.10$

Source: LISS data

When controlling for fixed effects, the coefficient of interest ψ is markedly lower than in pooled ordinary least squares, which implies that individual unobserved characteristics determine to a large extent both the respondent's perceived likelihood of losing his/her job and the respondent's mental health. A comparison of the effects found in the fixed effects model for the non-religious and the religious subsamples shows a point estimate for the (negative) effect size for the non-religious subsample that is larger than the point estimate for the religious subsample. The difference in effect size between the two subsamples is not statistically significant. However, the smaller effect of job insecurity on mental health for the religious does not significantly differ from zero, whereas the effect for the non-religious does. This less detrimental effect of job insecurity on mental health for the religious is only found for male employees. Men in general suffer a detrimental effect of job insecurity on mental health, an effect that is absent in religious men and stronger than average in non-religious men.

3.5.2 Main results for effect heterogeneity by denomination

Table 3.3 shows that job insecurity has no effect on the mental health of Protestants, male or female, but a significant effect on the mental health of Catholics. Somewhat surprisingly, as the main effect in the overall sample is larger for men than for women, job insecurity seems more detrimental to the mental health of Catholic women than to the mental health of Catholic men.

Table 3.3. *Coefficient of job insecurity by denomination, in fixed effects estimation of mental health*

	FE	**FE**	**FE**
		men	**women**
Catholic	**-0.0360*** **	-0.0265	**-0.0417** **
	(0.0137)	(0.0172)	(0.0201)
	N=736	358	378
Protestant	-0.0125	-0.0057	-0.0174
	(0.0148)	(0.0228)	(0.0195)
	N=515	247	268

Note: Robust standard errors in parentheses; *** $p<0.01$, ** $p<0.05$

Notes: Models include control variables (see par. 3.4). Cluster-robust standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.10$
Source: LISS data

3.5.3 Examining mechanisms

Religiousness may influence the mental health effects of job insecurity in various ways. One way is that religiousness could offer a social network able to provide the social support that fosters positive mental health outcomes. Another way is by holding certain personal beliefs about the existence of a God or a higher power that are likely to increase attribution of job insecurity as purposeful and part of a greater plan, which may result in fewer negative mental health outcomes (Probst & Strand, 2010). Personal beliefs about the existence of life after death may help reappraise the job security stressor by helping to put it in a broader perspective: "daily problems […] may be seen as merely temporary or ethereal" (Flannelly et al., 2006, p. 527). In a similar vein, Bradshaw and Ellison (2010)

found that belief in life after death buffers the detrimental effects of financial hardship on psychological distress.

Within the LISS panel, having personal beliefs that more or less comply with the belief system of a church or organized religion can be measured by an item asking which statement best matches their idea of God (with answer categories "I do not believe in God/I do not know if God exists, and I do not believe we have any way of knowing/I do not believe in a God that is personally concerned with each of us, but I do believe in a higher power/at some moments I do believe in God, at other moments I don't/I believe in God, although I have my doubts/I believe without any doubt that God exists") and an item asking whether the respondent believes in life after death (with answer categories "no/maybe/I don't know"). Unsurprisingly, employees who consider themselves religious and employees who consider themselves non-religious differ in belief in God and belief in life after death. Belief beyond doubt in God's existence is more common among employees who consider themselves religious: 36 per cent of them believes without any doubt in God's existence against 5 per cent of those who don't consider themselves religious. Belief beyond doubt in God's existence is more common among Protestants (49 per cent) than among Catholics (19 per cent). A similar pattern is found for belief in life after death. Belief in life after death is more common among employees who consider themselves members of a religion or a church community: 49 per cent of them believes in life after death, against 18 per cent of all those who don't consider themselves as such. Belief in life after death is more common among Protestants (59 per cent) than among Catholics (38 per cent). To investigate whether personal beliefs matter to the mental health effects of job insecurity we first compare estimates of ψ for the subsample that believes beyond doubt in God's existence and the subsample that doubts about or does not believe in God's existence. Likewise, we compare estimates of ψ for the subsample that believes in life after death and the subsample that doubts about or does not believe in life after death.

Table 3.4 shows that employees who do not doubt God's existence are insulated from detrimental mental health effects of job insecurity. Employees who have some doubt or do not believe in God's existence suffer a mental health deterioration from job insecurity. Firm belief in God's existence does little to explain the difference in effect size between religious and non-religious employees, however, nor to explain the difference between the denominations. A further analysis, not presented here, shows that Catholic employees suffer irrespective of the strength of their belief in God's existence, while Protestant employees do not suffer irrespective of the strength of their belief in God's existence. Interestingly, employees who do not consider themselves a member of a certain religion or church community yet firmly believe in God's existence do suffer a mental health deterioration as a result of job insecurity.

Table 3.4. *Coefficient of job insecurity by personal beliefs, attending religious gatherings and religious coping, in fixed effects estimation of mental health*

	FE	**FE men**	**FE women**
believes beyond doubt in God's existence	-0.0119	-0.0082	-0.0051
	(0.0142)	(0.0212)	(0.0210)
	N=765	372	393
doubts about or does not believe in God's existence	**-0.0234*** **	**-0.0370*** **	-0.0121
	(0.0066)	(0.0096)	(0.0091)
	N=3,201	1,589	1,612
believes in life after death	+0.0008	-0.0158	+0.0141
	(0.0115)	(0.0194)	(0.0143)
	N=1,419	604	815
doubts about or does not believe in life after death	**-0.0271*** **	**-0.0352*** **	-0.0189
	(0.0071)	(0.0098)	(0.0100)
	N=2,803	1,454	1,349
does not regularly attend religious gatherings	**-0.0245*** **	**-0.0395*** **	-0.0121
	(0.0066)	(0.0098)	(0.0087)
	N=3,283	1,625	1,658
does regularly attend religious gatherings	-0.0102	-0.0018	-0.0172
	(0.0186)	(0.0236)	(0.0293)
	N=531	263	268
considers him/herself religious and does not regularly attend religious gatherings	-0.0187	-0.0160	-0.0229
	(0.0125)	(0.0183)	(0.0171)
	N=1,037	506	531
considers him/herself religious and does regularly attend religious gatherings	-0.0149	-0.0042	-0.0219
	(0.0186)	(0.0235)	(0.0293)
	N=492	241	251
does not consider oneself religious and does regularly attend religious gatherings	-0.172		
	(0.160)		
	N=51		
does believe beyond doubt in God but does not regularly attend religious gatherings	-0.0221	-0.0380	-0.0077
	(0.0213)	(0.0389)	(0.0280)
	N=463	214	249
does believe beyond doubt in God and does regularly attend religious gatherings	-0.0046	+0.0011	-0.0042
	(0.0234)	(0.0308)	(0.0357)
	N=360	187	173
does not believe beyond doubt in God but does regularly attend religious gatherings	-0.0297	-0.0365	-0.0215
	(0.0332)	(0.0377)	(0.0580)
	N=245	111	134
does believe in life after death but does not regularly attend religious gatherings	+0.0049	-0.0205	+0.0233
	(0.0137)	(0.0246)	(0.0164)
	N=1,106	443	663
does believe in life after death and does regularly attend religious gatherings	-0.0058	+0.0108	-0.0221
	(0.0253)	(0.0345)	(0.0369)
	N=391	201	190
does not believe in life after death but does regularly attend religious gatherings	-0.0279	-0.0504	-0.0386
	(0.0375)	(0.0494)	(0.0535)
	N=210	95	115
religious coping does not apply or applies only slightly to respondent	-0.015	**-0.034** **	-0.005
	(0.010)	(0.014)	(0.013)
	N=1,195	596	599
religious coping rather or very much applies to respondent	-0.012	-0.000	-0.020
	(0.012)	(0.017)	(0.016)
	N=622	298	324

Notes: Models include control variables (see par. 3.4). Cluster-robust standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.10$

Source: LISS data

Table 3.4 shows that employees who believe in life after death are insulated from detrimental mental health effects of job insecurity. Employees who doubt or do not believe in life after death suffer a mental health deterioration from job insecurity. This is a pattern that cuts across the non-religious and the religious in a similar way: whether an employee considers himself a member of a religion or church community or not, firm belief in life after death insulates from detrimental mental health effects of job insecurity, while doubt or disbelief do not. Among Protestant employees the pattern is replicated, as well as that those who do doubt or disbelieve life after death do suffer a mental health deterioration as a result of job insecurity. Among Catholic employees, those who believe in life after death suffer less mental health deterioration from job insecurity than those who doubt or disbelieve this.

Within the LISS panel, the strength of social networks can be measured by an item asking to what extent there are people to whom the respondent feels closely connected and an item asking to what extent the respondent knows a lot of people that one can fully rely on. These items are administered to a small subsample of the LISS panel only, so this specific analysis is less reliable than the rest. It shows that employees who consider themselves members of a religion or a church community have no stronger social network than employees who don't consider themselves as such (based on extent of agreement with statements such as "there are enough people to whom I feel closely connected" and "I know a lot of people that I can fully rely on"). Furthermore, splitting the group at the median suggests that those who do have sufficient people to whom they feel closely connected or those who know a lot of people that they can fully rely on, suffer no different adverse mental health effects of job insecurity from those who don't have these social contacts. So, the buffering effect of being a member of a religion or church community in general, and being a member of a Protestant church in particular, cannot be explained by having access to a stronger social network: there is no stronger social network and a stronger social network does not influence the effect of job insecurity on mental health.

Social integration as a result of religiousness can also be measured by recording attendance to religious gatherings. In LISS this is measured by the item "Aside from special occasions such as weddings and funerals, how often do you attend religious gatherings nowadays?" with answer categories "every day/more than once a week/once a week/at least once a month/only on special religious days/less often/never/I don't know". Table 4 shows that job insecurity is less detrimental to mental health of respondents who regularly attend religious gatherings (ranging from every day to at least once a month) than to mental health of respondents who only attend on special religious days or less often. This is true for men and women alike. However, men who regularly attend religious gatherings without a strong belief in God or in life after death suffer a significant deterioration in mental health, as do men who do not attend religious gatherings frequently while holding a strong belief in God or in life after death. It appears that religiousness and strong spiritual beliefs need to be complemented by attending religious gatherings frequently in order to insulate men from the detrimental mental health effects of job insecurity.

Religiousness seems to be an effective coping style. In 2010 the LISS panel completed a brief version of the COPE (Carver et al., 1989), a scale to assess coping responses. Table 4 shows that respondents to whom it rather or very much applies to seek God's help and to find comfort in their faith in reaction to a difficult situation, experience no change in mental health from job insecurity, whereas those to whom it does not or only slightly applies experience a significant mental health deterioration from job insecurity.

3.5.4 Robustness checks

Table 3.5 indicates that the buffering role of religiousness in the mental health effect of job insecurity cannot be explained by reverse causality, as the difference in point estimate of effect size between those whose parents were religious and those whose parents were non-religious at age 15 is similar to the difference in point estimate of effect size between the religious and the non-religious that was found in Table 3.2.

In the main analysis for religiousness, we found that having parents who were religious when the respondent was 15 years of age shields employees who become job insecure from negative mental health effects. That may raise the question whether it is own religiousness that shields the respondent or the parents' religiousness. Possibly, being raised by religious parents and rejecting religion as an adult provides even better protection against the negative effects of job insecurity, in the same way as it is said to bring material benefits to the individual (Cornelissen & Jirjahn, 2012). To check this, we compare estimates of ψ for those who retain or reject their parent's religion and those who retain or reject their parent's non-religion. Table 3.5 shows that employees who as an adult reject their religious upbringing suffer as much from job insecurity as employees who were not raised religiously at all. Apparently, considering oneself as religious is what insulates the employee from the detrimental mental health effects of job insecurity, not a religious upbringing.

Table 3.5. *Coefficient of job insecurity by parents' and own religiousness in fixed effects estimation of mental health*

	FE	**FE**	**FE**
		men	**women**
parents at respondent's age 15 were non-religious	**-0.0253****	**-0.0378****	-0.0112
	(0.0121)	(0.0176)	(0.0159)
	N=1,412	693	719
parents at respondent's age 15 were religious	**-0.0156****	**-0.0328*****	+0.0010
	(0.0073)	(0.0100)	(0.0106)
	N=2,203	1,094	1,109
respondent non-religious and parents non-religious	-0.0241*	-0.0332*	-0.0138
	(0.0126)	(0.0192)	(0.0157)
	N=1,348	658	690
respondent non-religious and parents religious	**-0.0230****	**-0.0565*****	+0.0142
	(0.0109)	(0.0140)	(0.0165)
	N=1,256	634	622
respondent religious and parents non-religious	-0.0071	-0.0391	+0.0796
	(0.0569)	(0.0678)	(0.110)
	N=128	69	59
respondent religious and parents religious	-0.0127	-0.0096	-0.0142
	(0.0102)	(0.0152)	(0.0140)
	N=1,261	615	646

Notes: Models include control variables (see par. 3.4). Cluster-robust standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.10$

Source: LISS data

Protestants and Catholics tend to inhabit different regions of the country. It could be that in areas where Protestants tend to live the prospects of finding a similar job are better than in the areas where Catholics tend to live, which in combination with employability moderating the mental

health effect of job insecurity (Green, 2011) might explain our results. While we do not know where the respondents live, nor how those who are in employment perceive their employability, other LISS data indicate that Protestant unemployed do indeed perceive a slightly higher probability of finding a new job in the next 12 months (23.9 per cent) than Catholic unemployed (18.4 per cent). However, both unemployed Catholic women and unemployed Protestant women perceive their chances of re-employment much (12 per cent-point) higher than Catholic men and Protestant men respectively. Therefore, perceived employability would not be able to explain why Protestant men would benefit from their religiousness nor why Catholic women rather suffer such a negative mental health effect from job insecurity. Furthermore, the unemployed who do consider themselves religious perceive a lower probability of re-employment than the unemployed who do not, so differences in employability cannot explain why those who consider themselves religious seem to cope better with job insecurity than those who do not.

3.6 Conclusion and discussion

We find that religious employees in general, and Protestants among them in particular, despite being at risk due to a higher work ethic, are shielded from the adverse mental health effects of job insecurity. This effect cannot be explained by reverse causality. Religiousness is only advantageous to men confronted with job insecurity, in particular Protestant men; women, in particular Catholic women, are adversely impacted. A religious upbringing is not sufficient to be insulated from the negative mental health effects of job insecurity; the respondent has to consider himself religious.

What brings about this buffering effect? Important, it appears, are personal beliefs about the existence of God and the existence of life after death. We find that belief beyond doubt in God's existence as well as belief in life after death both insulate from detrimental mental health effects from job insecurity. Unlike belief in God's existence, that shields only the religious, and in particular the Protestants among them, belief in life after death insulates those who consider themselves religious as well as those who do not consider themselves religious. The belief in God and in afterlife only appear to insulate workers who frequently attend religious gatherings. In a similar vein, frequent attendance of religious gatherings only insulates those workers who hold strong beliefs in God and in afterlife. The social network that religiousness is said to provide does not seem to be responsible for the buffering role of religiousness, according to our results. Religious coping appears to be an effective coping style.

Positive mental health and stress buffering effects of belief in God or in life after death were also reported by Flannelly et al. (2006), Ellison et al. (2009) and Bradshaw and Ellison (2010). As mentioned earlier, belief in afterlife may help reappraise the job security stressor by helping to put it in a broader perspective. *Sub specie aeternitatis*, concerns about job security may be seen as ephemeral or ethereal. Furthermore, persons who expect to survive biological death must have immaterial minds or souls, to whom perceptions of material problems pertaining to job loss are probably less ominous or weighty (Flannelly et al., 2006). Positive health effects from attendance of religious gatherings were also reported by VanderWeele et al. (2017). Ours is the first study to indicate that both spiritual beliefs and frequent attendance of religious gatherings are required in order to benefit from the buffering effect of religiousness.

These results represent, to our knowledge, the first direct demonstration of the Probst and Strand (2010) proposition that highly spiritual employees experience fewer negative effects of job insecurity compared to less spiritual employees. That our results differ in that respect from Schreurs

et al. (2014) may be due to their sample containing a large proportion of Catholic employees as well as a large proportion of women, both groups to whom the beneficial effects of religiousness do not seem to befall in the same way as they do to Protestants and to men respectively.

Our results suggest that in future research it is prudent to distinguish clearly between religious affiliation and religious beliefs held (a point also made by Flannelly et al., 2006). There is a clear overlap between the two, but failing to control for personal beliefs might lead to misattribution of certain effects of religious beliefs to religious affiliation. As religious beliefs may vary in prevalence between religious groups, confounding religious affiliation and religious beliefs may also explain seemingly contradictory findings on the effect of religious affiliation.

An interesting topic for further investigation is whether cross-country differences in prevalence of religious beliefs influence cross-country differences in labour market institutions. As religious beliefs mitigate the negative effects of job insecurity for employees, voters in countries with high prevalence of firm religious belief may be more accepting of job insecurity. The labour market institutions in such countries may reflect such a preference (for a similar reasoning see Algan & Cahuc, 2006).

This study has a few limitations. Our data are one sample from one country. The Dutch subsample of religious employees is a unique blend of Protestants, Catholics, Muslims, and some other denominations with fewer adherents. Subsamples for denominations other than Protestants and Catholics were too small to analyse. Dutch Protestants and Catholics may have a different way of experiencing their religion or religious beliefs than Protestants and Catholics elsewhere, so whether our results generalize to other countries is not clear. Differences between subsamples that were found are not statistically significant; they are differences in nominal significance, which may produce type I errors greater than 5 per cent (Bland & Altman, 2015). Even though we control for time-invariant personal and job characteristics, we cannot rule out the possibility of reverse causality between job insecurity and mental health, so the "mental health effect" we discuss should not be interpreted as a causal effect.

This study shows that being religious may seem beneficial for coping with job insecurity, but that the main active constituents insulating an employee from the detrimental mental health effects of job insecurity appear to be a strong belief in God and in life after death. Apparently, what delivers a man from a night in a lion's den, also delivers him from job insecurity: "no manner of hurt was found upon him, because he believed in his God" (King James Bible, 1769/2017, Daniel 6: 23). A strong belief in life after death appears to have broader application, though, as its beneficial effects not only befall the religious, as with belief in God, but also the non-religious. As a result, a non-religious employee who believes in life after death may be better able to deal with job insecurity than a religious employee with some doubt about God or life after death. Particularly at risk are job insecure employees who believe in God nor afterlife, and they are found more often among non-religious and Catholic employees. Research into the mechanisms that link belief in God and in life after death on the one hand and the shielding effect on mental health on the other may inspire potential preventive and curative interventions. Absent such interventions, the confluence of two trends in society, both increasing job insecurity and increasing secularisation, poses a risk to public mental health.

Chapter 4

Five under stress. The role of personality in the mental health effect of job insecurity

Abstract

It has been established that in controlled settings, the Big5 personality traits affect short run coping effectiveness. It is an open question still to what extent these findings extend to real life: how well do people with different traits deal, over the course of years, with a real-life stressor such as job insecurity? We use fixed-effects (FE) estimation of the interaction between the Big5 traits and job insecurity on mental health in three large, representative, and comparable household panel data sets from the Netherlands (LISS), Germany (SOEP), and Australia (HILDA). Job insecurity is widespread and has a significant negative effect on mental health, an effect that is twice as large in Australia as in the Netherlands and Germany. In Dutch and German data we find (almost) no evidence of a moderating effect of Big5 personality traits in the mental health effect of job insecurity. In Australian data we find that extraversion has a mitigating effect on the mental health deterioration following job insecurity, and that openness to experience as well as neuroticism have an exacerbating effect on the mental health deterioration following job insecurity. When dealing with a real-life stressor such as job insecurity, employees who score high on extraversion appear more resilient and those who score high on openness to experience and neuroticism appear less resilient. Our results provide external validity to certain lab studies into the relation between Big5 traits and the stress response and fail to validate others.

Keywords: Five-factor model; Big5; stress coping; panel data; job insecurity; mental health

4.1 Introduction

Personality traits, in particular the Big5 traits, are increasingly recognized as powerful predictors of important life outcomes, such as educational attainment, job performance and wages, and health (see e.g. Borghans et al., 2008; Roberts et al., 2007; Strickhouser et al., 2017). The Big5 traits also appear to matter for stress regulation (e.g. Chida & Hamer, 2008; Schneider et al., 2012), but this is confirmed mainly in lab studies. Such studies generally consider only short-term effects, whilst the effects of stress may last much longer. A moderating effect on the relationship between stressors and well-being of another trait, 'locus of control', has been confirmed in real-life, longitudinal studies (Buddelmeyer & Powdthavee, 2016; Stillman & Velamuri, 2016). Yet whether the Big5 traits also matter outside the lab, when dealing with real-life stressors, is not clear. One such real-life stressor, already common in contemporary flexible labour markets prior to Covid-19 and no doubt more widespread as the pandemic disrupts economies, is job insecurity (e.g. Almeida & Santos, 2020). Job insecurity has been shown to deteriorate mental health (Green, 2011; Reichert & Tauchmann, 2017; see also chapter 2 of this dissertation).

The main contribution of this study is that it tests to what extent in real life and over the course of years the Big5 traits matter for the mental health effect of job insecurity. In other words: are some personalities more resilient to the demands of modern flexible labour markets than others? To this end we analyse three large, comparable household panel data sets for the Netherlands (LISS), Germany (SOEP), and Australia (HILDA). All three are representative panel data sets and the only ones that allow for determining a longitudinal relationship between job insecurity and mental health. In this study we exploit the panel structure of the data by a fixed-effects (FE) estimation strategy. We investigate to what extent the Big5 traits moderate the mental health effect of job insecurity.

The three data sets represent different models of organization of capitalist economies. Australia is characterized as a liberal market economy (Hall & Soskice, 2001) with market-based industrial relations, relatively loose employment protection legislation both for permanent and temporary workers (OECD, 2022b) and a relatively low level of public social expenditure (OECD, 2022c). Germany is characterized as a coordinated market economy (Hall & Soskice, 2001) with more corporatist industrial relations, rather strict employment protection legislation for both permanent and temporary workers (OECD, 2022b) and a relatively high level of public social expenditure (OECD, 2022c). The Netherlands is a somewhat hybrid mode of organization with corporatist industrial relations, among the strictest employment protection legislation of all OECD member states for permanent workers combined with rather loose employment protection legislation for temporary workers (OECD, 2022b) and a similar low level of public social expenditure as Australia (OECD, 2022c). In addition, the Netherlands is well known for its high prevalence of part-time jobs, particularly among women (ILO, 2016).

This study is to our knowledge the first study of the moderating effects of the Big5 personality traits on the relationship between a real-life stressor and well-being in the field as well as in a longitudinal framework. As such, this chapter contributes to a burgeoning literature about resilient personalities by showing how well people with different personalities deal with common stressors in real life. It offers insights in the role that personality plays in the resilience to the demands of modern labour markets.

4.2 Definitions and empirical evidence

4.2.1 Job insecurity and mental health

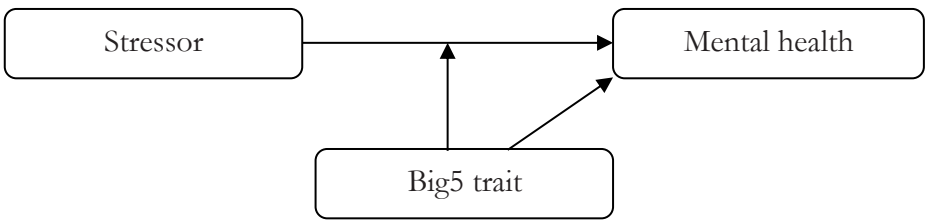
The interplay of an economic crisis, rapid transformations in economic structure - due to globalisation and proliferation of information technology - and more flexible labour markets has caused many to doubt the continuity of their job. This job insecurity is considered a stressor (Hobson et al., 1998) - as the expectation of something bad (e.g. unemployment) may have as negative effects as the bad thing itself (Lazarus & Folkman, 1984) - that has detrimental effects on mental health (Green, 2011; Reichert & Tauchmann, 2017; see also chapter 2 of this dissertation). The effect is not homogeneous across individuals, though. Next to the effects found in chapter 2, personality might also be an important factor that influences how well people cope with stress.

4.2.2 Big5 traits

After decades of factor analysis of predicates used to describe people, there appears to be consensus that five personality traits describe the organization of personality in a comprehensive way (Emmons, 1995). These five personality traits are openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism, collectively often referred to as the Five-Factor Model, Big5, or by the acronym OCEAN.

People who score high on openness have an active imagination, aesthetic sensitivity, attentiveness to inner feelings, a preference for variety, and intellectual curiosity (Costa & McCrae, 1992). People who score high on conscientiousness have confidence in their ability to accomplish things, are orderly and well-organized, have a strong sense of duty, strive hard to achieve excellence, are cautious and self-disciplined. People who score high on extraversion are assertive, gregarious, seek excitement, have a high ability to experience positive emotions, demonstrate positive feelings toward others openly, and lead fast-paced lives. People who score high on agreeableness dislike confrontations, are candid, trust others, are willing to forgive, help other people, are modest and compassionate. People who score high on neuroticism tend to worry a lot, respond emotionally to events, are moody, sensitive about what others think of them, have difficulty in coping with stress, are self-indulgent, are impulsive, and feel angry and hostile. The Big5 traits may have both a direct and an indirect effect on mental health (see Figure 4.1).

Figure 4.1. *Direct and indirect effects of a stressor on mental health*



A direct effect of the Big5 traits on mental health entails that even in the absence of stressors there may be a relationship between the traits and mental health: people who score high on certain traits may experience better/worse mental health. An indirect effect of the Big5 traits on mental

health entails the traits moderating the efficacy of dealing with the stressor, including the perception of it.

4.2.3 Big5 traits affect mental health directly

First, we discuss the literature concerning any direct effect. Directly, the relation between the combined Big5 traits and mental health is relatively strong (Strickhouser et al., 2017). In general, conscientiousness, agreeableness, and neuroticism appear stronger predictors of mental health than openness to experience and extraversion. This overall picture extends to a wide variety of mental health outcomes. Low conscientiousness, low extraversion, and high neuroticism are associated with depressive symptoms, even in longitudinal analyses adjusted for baseline depressive symptoms (Hakulinen et al., 2015). Clinical disorders are typically and robustly associated with low conscientiousness, low extraversion, low agreeableness, and high neuroticism (Kotov, 2010; Malouff, 2005). Venturing beyond mental ill-health, low neuroticism appears the strongest predictor of life satisfaction, happiness, and absence of negative affect. High extraversion and high agreeableness predict positive affect (DeNeve & Cooper, 1998) and positive mental health (Lamers et al., 2012). The strongest and most consistent predictors of other measures of subjective well-being are high extraversion and low neuroticism, and to a lesser extent high conscientiousness and high agreeableness, whereas high openness to experience is a predictor of both pleasant and unpleasant affect (see Diener & Lucas, 1999 for a review).

4.2.4 Big5 traits affect mental health indirectly

Indirectly, Big5 traits may influence mental health by affecting the way people cope with stress. Big5 traits affect perception of stress, coping styles people use (Connor-Smith & Flachsbart, 2007; Lee-Baggley et al., 2005), coping effectiveness, and physiological reactions to stress that appear to be associated with mental illness (Holsboer, 2000; Young et al., 2004). There is ample evidence indicating that high openness and low neuroticism, and to a lesser extent high conscientiousness and high extraversion, make for more effective stress coping, although most studies rely on evidence from the lab and few relate the effect of real-life stressors to well-being outcomes.

High openness predicts more stressor-related positive affect and less stressor-related negative affect (Leger et al., 2016; Schneider et al., 2012), reactions that are found to lower the risk of developing disorders and chronic conditions (Charles et al, 2013; Piazza et al, 2013). High openness persons appear to be more effective in coping with interpersonal stress (Lee-Baggley et al., 2005; Shiner & Masten, 2012), which could matter as the anticipation of loss of employment is sometimes construed as a social evaluation experience (Leitenberg, 2013). Evidence about the physiological response to stress associated with openness is inconsistent. Some find that high openness is related to diminished blood pressure reactivity (Williams et al., 2009), whereas others find increased cardiovascular reactivity (Bibbey et al., 2013). Some find increased cortisol stress reactivity associated with openness (Bibbey et al., 2013; Oswald et al., 2006), whereas others find openness associated with a blunted cortisol stress response (Xin et al., 2017).

High conscientiousness predicts the use of more problem-focused coping and cognitive restructuring (Carver & Connor-Smith, 2010; Sesker et al., 2016), which is associated with more positive affect (Bartley & Roesch, 2011), and less escape-avoidance and self-blaming coping

(O'Brien & DeLongis, 1996), which appears maladaptive. As a result, high conscientiousness is associated with better coping effectiveness (Dunkley et al., 2014) and less stressor-related negative affect (Leger et al., 2016). Evidence for an effect on the physiological stress response is weak. Garcia-Banda et al. (2011) found that conscientiousness was associated with an enhanced cortisol response to stress, while various other studies failed to find such an association (Bibbey et al., 2013; Oswald et al., 2006; Wirtz et al., 2007; Xin et al., 2017).

High extraversion predicts more stressor-related positive affect and less stressor-related negative affect (Leger et al., 2016; Schneider et al., 2012; Xin et al., 2017) and is associated with better coping (Fredrickson & Joiner, 2002). Evidence about the physiological stress response associated with extraversion is limited. Extraversion has been linked to lower cardiovascular reactivity (Jonaissant et al., 2009) and to lower cortisol stress response (Xin et al., 2017), although the opposite has also been reported in a gender-specific way (Oswald et al., 2006).

High agreeableness predicts greater use of social support and cognitive restructuring, and less disengagement, denial, and substance use (Carver & Connor-Smith, 2010). Evidence for an effect on the physiological stress response is weak. Bibbey et al. (2013) found that agreeableness was associated with an enhanced cortisol and cardiac response to stress, while various other studies failed to find such an association (Garcia-Banda et al., 2011; Oswald et al., 2006; Wirtz et al., 2007; Xin et al., 2017).

High neuroticism is positively associated with rumination (Roelofs et al., 2008) and with sleep disturbance, coping styles that are detrimental to mental health (Batterham et al., 2012). Neurotic respondents are more likely to believe their coping resources are inadequate to meet stressor demands (Gunthert et al., 1999; Schneider, 2004; Tong, 2010). High neuroticism predicts less stressor-related positive affect and more stressor-related negative affect (Leger et al., 2016; Schneider et al., 2012; Xin et al., 2017) and greater increases in negative affect when events are appraised as more undesirable, less pleasant, and less fair (Gunthert et al., 1999; Tong, 2010). High neuroticism predicts depressive and angry reactions to interpersonal conflicts (Bolger & Zuckerman, 1995). Low neuroticism predicts coping effectiveness (Dunkley et al., 2014). High neuroticism is associated with diminished cortisol stress reactivity (Bibbey et al, 2013; Oswald, 2006; Xin et al., 2017), diminished heart rate response (Hughes et al., 2006; Xin et al., 2017) and less quick cardiovascular recovery following a stressor (Chida & Hamer, 2008; Hughes et al., 2011; Hutchinson & Ruiz, 2011). Some studies fail to find such associations. This can be due to lack of power or methodological issues (Bibbey et al., 2013), one of which may be not taking into account a gender-effect. Various studies find that neuroticism is associated with blunted cortisol responses only in women, not in men (DeSoto & Salinas, 2015; Oswald et al., 2006).

4.3 Data and descriptive statistics

4.3.1 Data sources and selection

Our empirical analysis is based on panel data from three countries. Data for the Netherlands are from the LISS (Longitudinal Internet Studies for the Social sciences) panel administered by CentERdata (Tilburg University, the Netherlands; Centerdata, n.d.; Scherpenzeel, 2011). Data for Germany are from the SOEP (Socio-Economic Panel) administered by the German Institute for

Economic Research, DIW Berlin. Data for Australia are from the Household, Income and Labour Dynamics in Australia (HILDA) survey. All three panels are representative samples of their country's households and individuals, who participate in annual surveys covering a large variety of domains, including work life, income, health, well-being, and personality. The LISS panel contains data from 2008-2018 on around 5,000 households comprising around 7,500 individuals. The SOEP contains data from 1984-2018 on around 15,000 households comprising around 30,000 individuals. The HILDA survey contains data from 2001-2018 on around 10,000 households comprising more than 19,000 individuals.

For the purposes of these analyses only employees in permanent or temporary employment, on-call employees or temp-staffers are considered; self-employed/freelance employees, independent professionals, directors of limited liability companies or majority shareholder directors are filtered out. The analysis is limited to employees below the age of 68 years[7].

In LISS and SOEP, there is a time lag between measurement of the dependent variable, i.e. mental health, and the independent variable, i.e job insecurity. In LISS, the mental health items are administered in November, while the job insecurity item is administered in June. In SOEP, the mental health items are administered in even years, while the job insecurity item is administered in odd years. As to not confound any effect of perceived job insecurity on mental health with the effect of unemployment on mental health, our analysis is limited to respondents who still have a job at the time of measurement of mental health.

Table 4.1 provides descriptive statistics of the three data sources and indicates a few notable differences: respondents in the Netherlands are on average a few years older than respondents in Australia and Germany, German and Australian respondents work more hours per week than Dutch respondents, Australian respondents are far more likely to work on a temporary contract than Dutch or German respondents (although differences in definition may make comparisons less straightforward), and the largest share of public sector workers is found among Dutch respondents, the smallest among German respondents.

[7] The analysis is limited to employees who work at least 12 hours a week. In the robustness check in chapter 2 this limitation turned out inconsequential for sign or size of the mental health effect of job insecurity.

Table 4.1. *Demographic and job-related characteristics of respondents for the Netherlands/Germany/Australia, for all and by gender.*

		all			**men**			**women**		
		mean	sta dev	obs	mean	sta dev	obs	mean	sta dev	obs
NL	age	46.04	10.41	13,256	46.86	10.13	6,797	45.17	10.62	6,459
	hours per week	34.86	9.97	13,256	40.08	7.63	6,797	29.37	9.17	6,459
	temp contract	0.07	0.26	13,256	0.06	0.24	6,797	0.09	0.28	6,459
	public sector	0.43	0.49	13,256	0.29	0.45	6,797	0.57	0.50	6,459
	net monthly income (EUR)	1,915	2,372	13,256	2,264	2,470	6,797	1,547	2,206	6,459
	low education[8]	0.21	0.41	13,256	0.21	0.41	6,797	0.21	0.41	6,459
	mid education[9]	0.38	0.49	13,256	0.38	0.49	6,797	0.38	0.49	6,459
	high education[10]	0.41	0.49	13,256	0.41	0.49	6,797	0.41	0.49	6,459
GER	age	42.76	10.86	47,017	42.76	10.94	24,858	42.76	10.78	22,159
	hours per week	39.33	10.52	47,017	43.67	8.21	24,858	34.46	10.70	22,159
	temp contract	0.11	0.31	47,017	0.10	0.30	24,858	0.12	0.33	22,159
	public sector	0.31	0.46	47,017	0.20	0.40	24,858	0.44	0.50	22,159
	net monthly income (EUR)	1,726	1,123	47,017	2,119	1,231	24,858	1,286	781	22,159
	low education[11]	0.27	0.44	47,017	0.31	0.46	24,858	0.22	0.41	22,159
	mid education[12]	0.47	0.50	47,017	0.42	0.49	24,858	0.52	0.50	22,159
	high education[13]	0.27	0.44	47,017	0.27	0.44	24,858	0.26	0.44	22,159
AUS	age	39.23	12.70	103,915	39.11	12.67	51,744	39.35	12.74	52,171
	hours per week	38.16	12.10	103,915	42.43	11.19	51,744	33.93	11.48	52,171
	temp contract	0.27	0.44	103,915	0.23	0.42	51,744	0.30	0.46	52,171
	public sector	0.36	0.48	103,915	0.22	0.42	51,744	0.50	0.50	52,171
	net FYhousehold income (AUS$)	94,732	53,458	103,915	94,532	52,653	51,744	94,931	54,255	52,171
	low education[14]	0.36	0.48	103,915	0.35	0.48	51,744	0.37	0.48	52,171
	mid education[15]	0.33	0.47	103,915	0.38	0.48	51,744	0.28	0.45	52,171
	high education[16]	0.31	0.46	103,915	0.27	0.44	51,744	0.35	0.48	52,171

Source: LISS data, SOEP data and HILDA data

[8] primary school or intermediate secondary education
[9] higher secondary education or intermediate vocational education
[10] higher vocational education or university
[11] general elementary school or basic vocational qualification
[12] intermediate general and vocational qualification and general and vocational maturity qualification
[13] lower and higher tertiary education
[14] year 12 and below
[15] cert III or IV, advanced diploma, diploma
[16] bachelor or honours, graduate diploma or certificate, and postgrad

4.3.2 Measuring mental health

In the LISS, five items from the 36-item Short-Form Health Survey Questionnaire (SF-36) are administered. These items collectively form the Mental Health Inventory (MHI-5). The items cover two major mental health dimensions (anxiety and depression) and have good psychometric properties and validity (see e.g. Rumpf et al., 2001; Strand et al., 2003; Thorsen et al., 2013). The MHI-5 scale runs from 0 to 100, with higher scores indicating better mental health.

In the SOEP, the SF-12v2, a 12-item subset of the SF-36v2 that measures eight domains of health, is as of 2002 administered in two-year intervals. Two of these 12 items are part of the MHI-5. For our main analysis we use these two items to construct an MHI-2 scale that is then transformed to have a mean score of 75 and a standard deviation of 15 (the MHI-5 in both the Netherlands and Australia has this mean and standard deviation, hence this transformation allows for easy comparability of effect sizes). For a robustness check a Mental Component Summary scale (see Ware et al., 1994) was constructed from all 12 items, with scores transformed such that (in the 2004 SOEP) a mean score of 50 resulted and a standard deviation of 10 (cf. Anderson et al., 2007).

In HILDA, the SF-36 is administered every year. For our main analysis we use the five items that together form the MHI-5. For a robustness check a Mental Component Summary scale was constructed from all 36 items, with scores transformed such that (in the 1995 Australian National Health Survey) a mean score of 50 resulted and a standard deviation of 10 (cf. Australian Bureau of Statistics, 1997).

Table 4.2 shows that levels of levels of mental health in the Netherlands, Germany (by construction) and Australia show great similarity, as do gender differences. Men are generally in better mental health than women.

Table 4.2. *Descriptive statistics on mental health for the Netherlands/Germany/Australia for all and by gender*

		all			**men**			**women**		
		mean	sta dev	obs	mean	sta dev	obs	mean	sta dev	obs
NL	mental health	76.26	15.18	13,256	77.49	14.74	6,797	74.97	15.52	6,459
GER	mental health	75.17	14.08	47,017	76.63	13.91	24,858	73.54	14.08	22,159
AUS	mental health	75.27	15.69	103,915	76.28	15.30	51,744	74.26	16.00	52,171

Source: LISS data, SOEP data and HILDA data

4.3.3 Measuring job insecurity

In the LISS, job insecurity is measured with the item "Do you think that there is any chance that you might lose your job in the coming 12 months? You can indicate this in terms of a percentage. 0% means that you are sure you will not lose your job, and 100% means that you are sure that you will lose your job". This item was as of 2010 only administered to heads of households and partners. It was administered every June/July (except in 2008, when it was administered in June/September)[17].

In the SOEP, job insecurity is measured with the item "How likely is it according to your opinion that you will lose your job within the next 2 years? Please state the likelihood using a scale from 0 to 100. In this case the value 0 means "This will not happen for sure", the value 100 means "This will happen for sure". You can use the values in between 0 and 100 to make your estimate". The latter scale was used from 1999 onwards in two-year intervals.

In HILDA, job insecurity is measured with the item "I would like you to think about your employment prospects over the next 12 months. What do you think is the per cent chance that you will lose your job during the next 12 months? (That is, get retrenched or fired or not have your contract renewed)". Answers can range from 0 to 100 inclusive.

Table 4.3 shows that the average level of job insecurity is highest in Germany, almost twice the level in Australia. In addition to institutional differences and differences in time periods, this may be due to German respondents stating their perceived likelihood of job loss in the next 24 months rather than the 12 months in the Netherlands and Australia. In light of the latter, the level of job insecurity in the Netherlands is relatively high. Just prior to the financial crisis (in 2008) job insecurity in the Netherland was only slightly higher than in Australia, but while job insecurity increased sharply in the Netherlands as the crisis unfolded (see Figure 1.1), job insecurity remained around 10 per cent in Australia (not shown in graph or table). Differences in job insecurity between men and women appear to be small.

Table 4.3. *Descriptive statistics on job insecurity, Netherlands/Germany/Australia*

		all			**men**			**women**		
		mean	sta dev	obs	mean	sta dev	obs	mean	sta dev	obs
NL	job insecurity	17.44	25.43	13,256	17.05	24.64	6,797	17.84	26.22	6,459
GER	job insecurity	20.04	24.20	47,017	19.92	23.73	24,858	20.19	24.73	22,159
AUS	job insecurity	10.23	19.92	103,915	11.04	20.26	51,744	9.43	19.55	52,171

Source: LISS data, SOEP data and HILDA data

[17] More information on data and measurement can be found in chapter 2.

4.3.4 Measuring personality

In the LISS, the Big5 traits were measured annually by administering the 50-item version of the IPIP (Goldberg, 1992). Respondents rate on a five-point scale ranging from 1 very inaccurate through 5 very accurate how statements describe them. Examples of items are: "I am the life of the party", "I feel little concern for others", and "I get stressed out easily". "The IPIP has good internal consistency and relates strongly to major dimensions of personality assessed by the NEO-FFI" (the NEO-FFI is the standard scale by which the Big5 traits are usually measured; Zheng et al., 2008). Aggregate scores for the five traits were calculated by using the weights obtained from principal component analysis. As any within-variation is limited and furthermore presumably largely due to noise or measurement error, the traits are then made time-invariant by averaging the within-individual values for each of the traits. This also facilitates the interpretation of the interaction effect.

In the SOEP, the Big5 traits were measured in 2005, 2009, and 2013 by administering the 15-item scale BFI-S (Gerlitz & Schupp, 2005). Items are taken from the Ten-Item Personality Inventory and from the BFI-25 (Richter et al., 2013). Respondents rate on a seven-point scale ranging from "1 does not apply" through "7 applies fully" how the statement "I am someone who ..." applies to them when complemented with e.g. "... does a thorough job", "... is outgoing, sociable", or "... worries a lot". The BFI-S is reasonably reliable and valid in comparison to the NEO-FFI scale and to external criteria of validity (Gerlitz & Schupp, 2005; Lang, 2005). Aggregate scores for the five traits were calculated by using the weights obtained from principal component analysis. The traits are then made time-invariant by averaging the within-individual values for each of the traits.

In HILDA, the Big5 traits were measured in 2005, 2009, and 2013 by administering a 36-item scale largely based on the Trait Descriptive Adjectives-40 (Saucier, 1994). Respondents rate on a seven-point scale ranging from "1 does not describe me at all" through "7 describes me very well" how well 36 adjectives, e.g. "talkative", "orderly" or "moody", describe them. Of these 36 items 28 were found to load on the corresponding component of the Big5 structure and were used to create the five scales (see Losoncz (2009) for more details on the method). The traits are then made time-invariant by averaging the within-individual values for each of the traits.

As absolute scores are incomparable both between traits and between countries, because scales and items differ, scores on the traits have been standardized (mean 0, standard deviation 1). Table 4.4 shows that overall, gender differences in Big5 traits are consistent with the existing evidence (Schmitt et al., 2008; Soto et al., 2011): men score higher on openness than women in the Netherlands and Australia, whereas men score lower on openness than women in Germany; men score lower on conscientiousness, extraversion, and agreeableness in all three countries; men score lower on neuroticism in the Netherlands and Germany. The only finding inconsistent with existing evidence is that men score (marginally) higher than women on neuroticism in Australia.

Table 4.4. *Descriptive statistics for the Big5 traits for all and by gender for the Netherlands/Germany/Australia*

		all			**men**			**women**		
		mean	sta dev	obs	mean	sta dev	obs	mean	sta dev	obs
NL	Openness	0.00	1.00	13,256	0.09	1.02	6,797	-0.09	0.97	6,459
	Conscientiousness	0.00	1.00	13,256	-0.13	0.97	6,797	0.13	1.01	6,459
	Extraversion	0.00	1.00	13,256	-0.03	1.01	6,797	0.04	0.99	6,459
	Agreeableness	0.00	1.00	13,256	-0.37	1.00	6,797	0.39	0.84	6,459
	Neuroticism	0.00	1.00	13,256	-0.19	0.97	6,797	0.20	1.00	6,459
GER	Openness	0.00	1.00	47,017	-0.10	0.97	24,858	0.11	1.03	22,159
	Conscientiousness	0.00	1.00	47,017	-0.10	1.03	24,858	0.11	0.96	22,159
	Extraversion	0.00	1.00	47,017	-0.15	0.99	24,858	0.17	0.98	22,159
	Agreeableness	0.00	1.00	47,017	-0.17	1.01	24,858	0.19	0.95	22,159
	Neuroticism	0.00	1.00	47,017	-0.21	0.96	24,858	0.24	1.00	22,159
AUS	Openness	0.00	1.00	103,915	0.04	0.98	51,744	-0.04	1.02	52,171
	Conscientiousness	0.00	1.00	103,915	-0.13	0.97	51,744	0.12	1.01	52,171
	Extraversion	0.00	1.00	103,915	-0.14	0.95	51,744	0.14	1.04	52,171
	Agreeableness	0.00	1.00	103,915	-0.30	1.00	51,744	0.30	0.90	52,171
	Neuroticism	0.00	1.00	103,915	0.01	0.98	51,744	-0.01	1.02	52,171

Source: LISS data, SOEP data and HILDA data

4.4 Estimation strategy

In order to investigate the effect of job insecurity on mental health outcomes we estimate in pooled OLS for each Big5 trait (subscript *j*) separately:

$$MH_{it} = a_j + v_{it}\,\psi_j + v_{it}\,\pi'_{ij}\,\omega_j + \pi_{ij}\,\chi_j + x'_{it}\,\beta_j + \pi_{ij}\,x'_{it}\,\zeta_j + z'_{it}\,\gamma_j + \pi_{ij}\,z'_{it}\,\varsigma_j + \varkappa_s\,\eta_j + \pi_{ij}\,\varkappa_s\,\theta_j + \tau_t\,\iota_j + u_{it},$$

where MH_{it} is mental health for individual i at time t, α is the intercept, v_{it} is job insecurity for individual i at time t, ψ_j is the coefficient of job insecurity, π_{ij} is the trait score for individual i (assumed to be constant at least in the short run) on trait j, ω_j is a 5-dimensional column vector of coefficients

of the interaction between job insecurity and Big5 traits, χ_j is the 5-dimensional column vector of coefficients of the main effect of traits, x'_{it} is a 7-dimensional row vector of time-varying explanatory variables (personal characteristics including age squared, living with children in the household, net personal income, and job characteristics including temporary employment, tenure, employment in a small establishment[18], number of hours worked per week), β_j is a 7-dimensional column vector of coefficients of the time-varying explanatory variables, ζ_j is a 7-dimensional column vector of coefficients of the interaction between trait score and time-varying explanatory variables (as we do not *a priori* assume that the effect of these variables on mental health is the same for people scoring high or low on the trait), z'_{it} is an 11-dimensional row vector of explanatory variables that show little or constant variation in time (personal characteristics including age, living with a partner, dummies for education level, dummies for degree of urbanisation of area of residence[19]), γ_j is an 11-dimensional column vector of coefficients of the time-nonvarying explanatory variables, ς_j is an 11-dimensional column vector of coefficients of the interaction between trait score and time-nonvarying explanatory variables (as we do not *a priori* assume that the effect of these variables on mental health is the same for people scoring high or low on the trait), $\varkappa_s$ are sector dummies and τ_t year dummies and, η_j , θ_j and ι_j are column vectors of parameters, and u_{it} is an idiosyncratic error term. We cluster standard errors for correlations across multiple observations for each individual. The purpose of this analysis, wherein we exploit both between-variation and within-variation, is to establish if ω_j, the coefficient of the interaction between job insecurity and personality trait j, is significant.

Although several variables to control for observed heterogeneity are included, a good deal of unobserved heterogeneity is likely to remain. Such an unobserved characteristic could be optimism, which no doubt influences perceived job insecurity, affects mental health (Conversano et al., 2010) and is correlated with Big5 traits (Coelho et al., 2018). Omitted variables like these could lead to inconsistent estimates if not properly accounted for. If we assume such unobserved characteristics to be time-invariant, at least within a limited period of time, and if we further assume strict exogeneity of the explanatory variables, then the fixed-effects method is capable of solving the endogeneity problem resulting from omitted variables bias. Therefore, we subsequently estimate in fixed effects for each trait (subscript j) separately:

$$MH_{it} = a_j + v_{it}\,\psi_j + v_{it}\,\pi'_{ij}\,\omega_j + \pi_{ij}\,\chi_j + x'_{it}\,\beta_j + \pi_{ij}\,x'_{it}\,\zeta_j + \varkappa_s\,\eta_j + \pi_{ij}\,\varkappa_s\,\theta_j + \tau_t\,\iota_j + c_{ij} + u_{it},$$

where c_{ij} is an individual-specific effect. The purpose of this analysis, wherein we exploit both between-variation and within-variation, is again to establish if ω_j, the coefficient of the interaction between job insecurity and personality trait j, is significant. This estimated coefficient of the interaction between job insecurity and personality trait j allows us to determine how the within effect of job insecurity on mental health changes as the trait score changes between individuals. As there is, by construction, no within-variation[20] in the Big5 trait scores, the interaction captures purely the between trait level variation in within job insecurity variation (Giesselman & Schmidt-Catran, 2020). To illustrate (roughly) how this within-variation changes with trait level score, we show effect sizes for three groups (i.e. the lowest, middle, and highest tertile of respondents for each trait) in each

[18] Not included in the analysis using HILDA, since non-response to this item would cause loss of >30,000 observations.
[19] Not available in HILDA
[20] As traits are made time-invariant by averaging the within-individual values for each of the traits. See 4.3.4.

country. This allows us furthermore to observe potential non-linear effects, as various studies suggest that there may not be a monotonic relationship between the Big5 traits and outcome variables and that the optimal level of traits may well be somewhere between the extremes (e.g. Carter et al., 2014; Cucina & Vasilopoulos, 2005; LaHuis et al., 2005; Le et al. 2011).

4.5 Results

4.5.1 Main effect of Big5 traits and job insecurity on mental health

In order to examine whether main effects found for both job insecurity and Big5 traits are consistent with existing evidence we start with pooled OLS regressions with job insecurity and Big5 traits as independent variables, without any interaction effect between the traits and job insecurity. Table 4.5 shows a significant negative association between job insecurity and mental health, suggesting that respondents with more job insecurity are in worse mental health, which is in line with earlier studies (Green, 2011; Reichert & Tauchmann, 2017; see also chapter 2 of this dissertation). A consistently positive association with mental health is found for conscientiousness, and a consistently negative association for neuroticism. Extraversion and agreeableness have a positive association with mental health in two out of three countries, and openness to experience a negative association in one out of three countries. The results are largely in line with previous studies (e.g. Strickhouser et al., 2017), that concluded that in general conscientiousness, agreeableness, and neuroticism appear stronger predictors of mental health than openness to experience and extraversion.

Table 4.5. *Main effects of job insecurity and Big5 traits on mental health in pooled OLS for the Netherlands/Germany/Australia*

	Netherlands	Germany	Australia
Job insecurity	**-0.043*** **	**-0.053*** **	**-0.060*** **
	(0.006)	(0.003)	(0.003)
Openness to experience	-0.312	-0.059	**-0.610*** **
	(0.201)	(0.092)	(0.113)
Conscientiousness	**0.571*** **	**0.171***	**0.821*** **
	(0.168)	(0.088)	(0.109)
Extraversion	**0.368** **	0.033	**1.616*** **
	(0.187)	(0.094)	(0.107)
Agreeableness	0.099	**0.806*** **	**0.593*** **
	(0.200)	(0.091)	(0.116)
Neuroticism	**-8.126*** **	**-5.331*** **	**-4.903*** **
	(0.187)	(0.085)	(0.116)
Number of observations	13,256	47,017	103,915
R-squared	0.3234	0.1877	0.1772

Notes: Models include control variables (see par. 4.4). Cluster-robust standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.10$

Source: LISS data, SOEP data and HILDA data

The next step is to investigate the specific role of Big5 traits in dealing with job insecurity. We do that separately for each trait.

4.5.2 Openness to experience

Table 4.6 shows that in pooled OLS the interaction between openness and job insecurity is significant in Australia only, in the sense that openness exacerbates the detrimental effect of job insecurity. This implies that more open respondents are in worse mental health at higher levels of job insecurity than less open respondents, and/or that an increase in job insecurity has a larger negative mental health effect in more open respondents.

Table 4.6. *Main and interaction effects of job insecurity and openness to experience on mental health in pooled OLS and fixed effects for the Netherlands/Germany/Australia*

	pooled OLS			FE		
	NL	**GER**	**AUS**	**NL**	**GER**	**AUS**
job insecurity	**-0.077*** **	**-0.080*** **	**-0.082*** **	**-0.020*** **	**-0.0147*** **	**-0.035*** **
	(0.0071)	(0.003)	(0.004)	(0.006)	(0.0034)	(0.0024)
openness x job insecurity	-0.0109	+0.0028	**-0.0143*** **	-0.0089	+0.0014	**-0.0052** **
	(0.0068)	(0.0034)	(0.0037)	(0.0062)	(0.0035)	(0.0025)
openness	+9.071	-2.426	-5.065			
	(5.764)	(2.228)	(3.199)			
Observations	13,256	47,017	103,915	13,256	47,017	103,915
Individuals				3,803	18,937	14,054
R-squared	0.0615	0.0437	0.0452	0.0096	0.0119	0.0069
Joint significance of job insecurity and interaction	$F(2,3802)$ = 59.97 (p<0.00001)	$F(2,18936)$ = 278.40 (p<0.00001)	$F(2,14053)$ = 247.72 (p<0.00001)	$F(2,3802)$ = 6.24 (p=0.0020)	$F(2,18936)$ = 9.48 (p=0.0001)	$F(2,14053)$ = 104.56 (p<0.00001)

Notes: Models include control variables (see par. 4.4). Cluster-robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.10

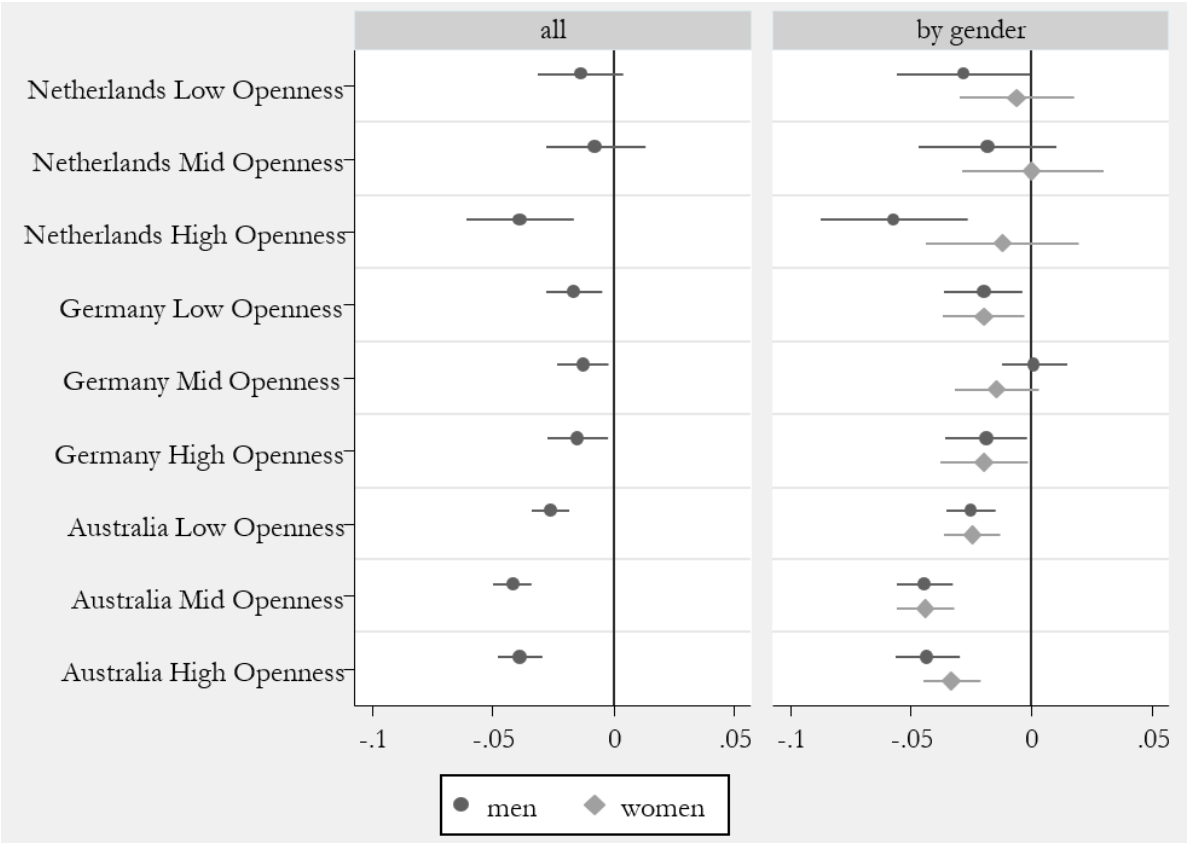
Source: LISS data, SOEP data and HILDA data

The interaction effect between openness and job insecurity found for Australia in pooled OLS remains significant once between-variation is excluded and only within-variation is exploited, as in the fixed-effects models. To explore potential non-linear effects, Figure 4.1 shows point estimates of effect size of job insecurity on mental health for groups (tertiles) high, medium, and low in openness to experience[21]. The interaction effect in Australia appears driven by the difference

[21] Note that the overlap in CIs between groups does not imply absence of a significant difference in effect size of job insecurity on mental health between respondents high, medium, or low in openness to experience (see e.g. Wolfe & Hanley, 2002).

in effect size between the group low in openness to experience on the one hand and the groups medium and high on the other; there is little difference in effect size between groups medium and high in openness to experience. This difference in effect size is not different for men or for women (t=0.47; p=0.636). In the Netherlands, point estimates of effect size of groups low and medium in openness hardly differ, but the point estimate for the group high in openness is more negative. There is no significant difference between the groups for the Netherlands, though, neither for the whole group nor for men and women separately (t=0.86; p=0.391).

Figure 4.1. *Point estimate and 95% CI of effect size of job insecurity on mental health by level of Openness to experience in fixed effects for the Netherlands/Germany/Australia, for all and by gender*



Source: LISS data, SOEP data and HILDA data

4.5.3 Conscientiousness

Table 4.7 shows that in pooled OLS the interaction between conscientiousness and job insecurity is significant in Germany only. The negative sign implies that more conscientious respondents are in worse mental health at higher levels of job insecurity than less conscientious respondents, and/or that an increase in job insecurity has a larger negative effect in more conscientious respondents.

Table 4.7. *Main and interaction effects of job insecurity and conscientiousness on mental health in pooled OLS and fixed effects for the Netherlands/Germany/Australia*

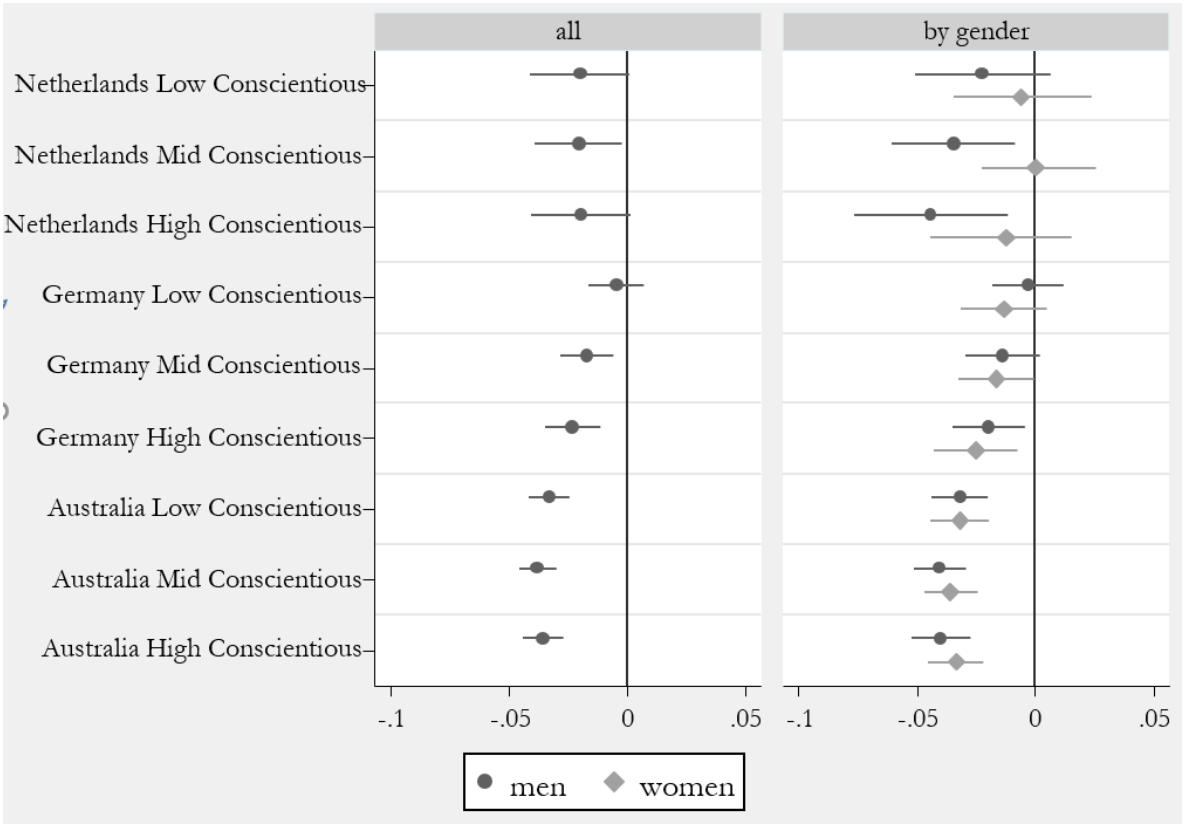
	pooled OLS			FE		
	NL	**GER**	**AUS**	**NL**	**GER**	**AUS**
job insecurity	**-0.075*** **	**-0.078*** **	**-0.075*** **	**-0.020*** **	**-0.015*** **	**-0.036*** **
	(0.007)	(0.0034)	(0.004)	(0.006)	(0.0034)	(0.0025)
conscientiousness x job insecurity	+0.0090	**-0.0092*** **	+0.0011	-0.0020	**-0.0076** **	-0.0006
	(0.0071)	(0.0033)	(0.0038)	(0.0061)	(0.0034)	(0.0026)
conscientiousness	-0.265	-2.226	+4.367*			
	(5.792)	(2.821)	(2.576)			
Observations	13,256	47,017	103,915	13,256	47,017	103,915
Individuals				3,803	18,937	14,054
R-squared	0.0723	0.0482	0.0627	0.0117	0.0120	0.0069
Joint significance of job insecurity and interaction	$F(2,3802)$ = 59.06 (p<0.00001)	$F(2,18936)$ = 261.55 (p<0.00001)	$F(2,14053)$ = 206.48 (p<0.00001)	$F(2,3802)$ = 5.61 (p=0.0037)	$F(2,18936)$ = 12.02 (p<0.00001)	$F(2,14053)$ = 104.94 (p<0.00001)

Notes: Models include control variables (see par. 4.4). Cluster-robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.10

Source: LISS data, SOEP data and HILDA data

The interaction effect between conscientiousness and job insecurity found for Germany in pooled OLS remains significant in the fixed-effects models. Figure 4.2 shows point estimates of effect size of job insecurity on mental health for groups high, medium, and low in conscientiousness. The effect size in Germany increases monotonically with conscientiousness, yet the largest difference appears between the group low in conscientiousness on the one hand and the groups medium and high on the other.

Figure 4.2. *Point estimate and 95% CI of effect size of job insecurity on mental health by level of Conscientiousness in fixed effects for the Netherlands/Germany/Australia, for all and by gender*



Source: LISS data, SOEP data and HILDA data

4.5.4 Extraversion

Table 4.8 shows that in pooled OLS the interaction between extraversion and job insecurity is significant both in Germany and in Australia. A positive interaction effect implies that more extraverted respondents are in better mental health at higher levels of job insecurity than less extraverted respondents, and/or that an increase in job insecurity has a smaller negative effect in more extraverted respondents.

Table 4.8. *Main and interaction effects of job insecurity and extraversion on mental health in pooled OLS and fixed effects for the Netherlands/Germany/Australia*

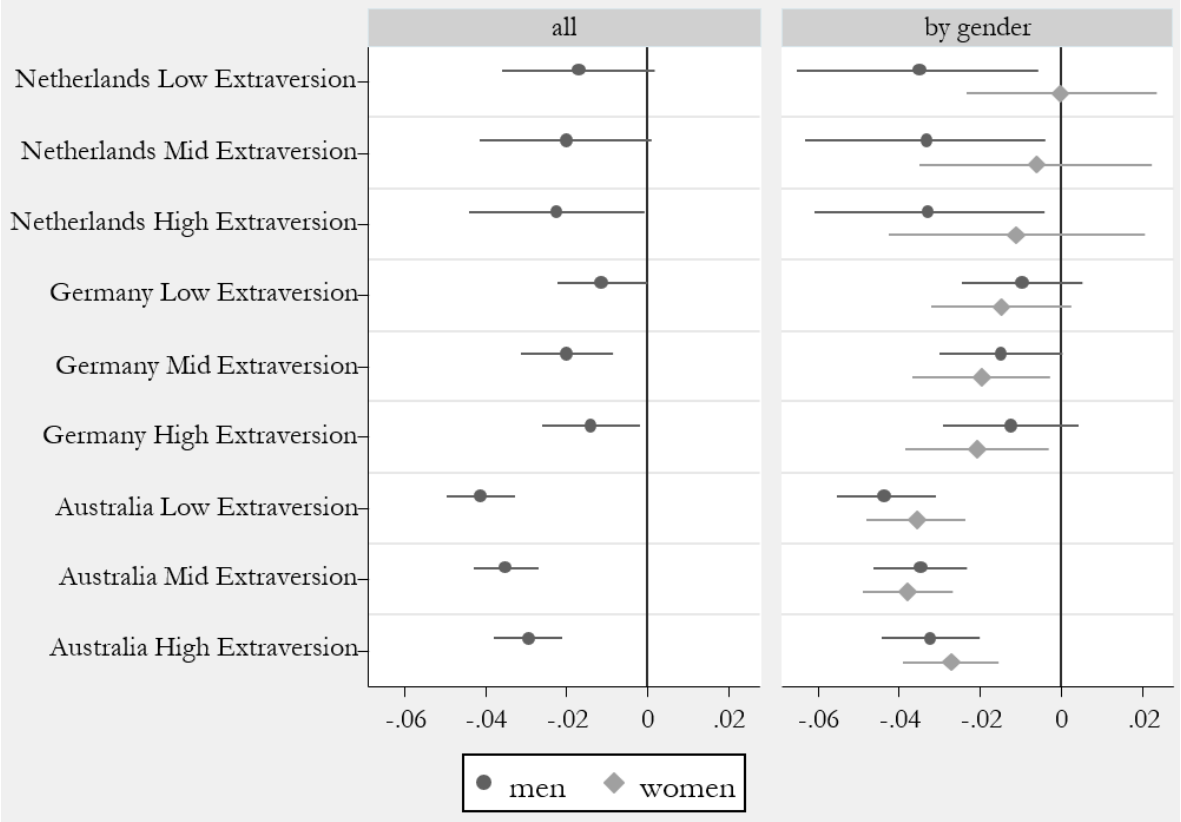
	pooled OLS			FE		
	NL	**GER**	**AUS**	**NL**	**GER**	**AUS**
job insecurity	**-0.076*** **	**-0.078*** **	**-0.077*** **	**-0.019*** **	**-0.015*** **	**-0.035*** **
	(0.0070)	(0.0034)	(0.004)	(0.0027)	(0.0034)	(0.0024)
extraversion x job insecurity	-0.0009	**+0.0075** **	**+0.0108*** **	-0.0028	-0.0003	**+0.0054** **
	(0.0068)	(0.0035)	(0.0039)	(0.0062)	(0.0034)	(0.0026)
extraversion	-2.996	-1.765	-2.892			
	(6.024)	(2.202)	(3.413)			
Observations	13,256	47,017	103,915	13,256	47,017	103,915
Individuals				3,803	18,937	14,054
R-squared	0.0699	0.0467	0.0697	0.0104	0.0117	0.0071
Joint significance of job insecurity and interaction	$F(2,3802)$ = 59.43 (p<0.00001)	$F(2,18936)$ = 268.41 (p<0.00001)	$F(2,14053)$ = 224.54 (p<0.00001)	$F(2,3802)$ = 5.35 (p=0.0048)	$F(2,18936)$ = 9.47 (p=0.0001)	$F(2,14053)$ = 104.72 (p<0.00001)

Notes: Models include control variables (see par. 4.4). Cluster-robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.10

Source: LISS data, SOEP data and HILDA data

Only for Australia the interaction effect between extraversion and job insecurity found in pooled OLS remains significant in the fixed-effects models. Figure 4.3 shows that the point estimate of the effect size of job insecurity on mental health in Australia increases monotonically with extraversion, in particular for Australian men.

Figure 4.3. *Point estimate and 95% CI of effect size of job insecurity on mental health by level of Extraversion in fixed effects for the Netherlands/Germany/Australia, for all and by gender*



Source: LISS data, SOEP data and HILDA data

4.5.5 Agreeableness

Table 4.9 shows that in pooled OLS the interaction of job insecurity and agreeableness on mental health is significant in none of the three countries.

Table 4.9. *Main and interaction effects of job insecurity and agreeableness on mental health in pooled OLS and fixed effects for the Netherlands/Germany/Australia*

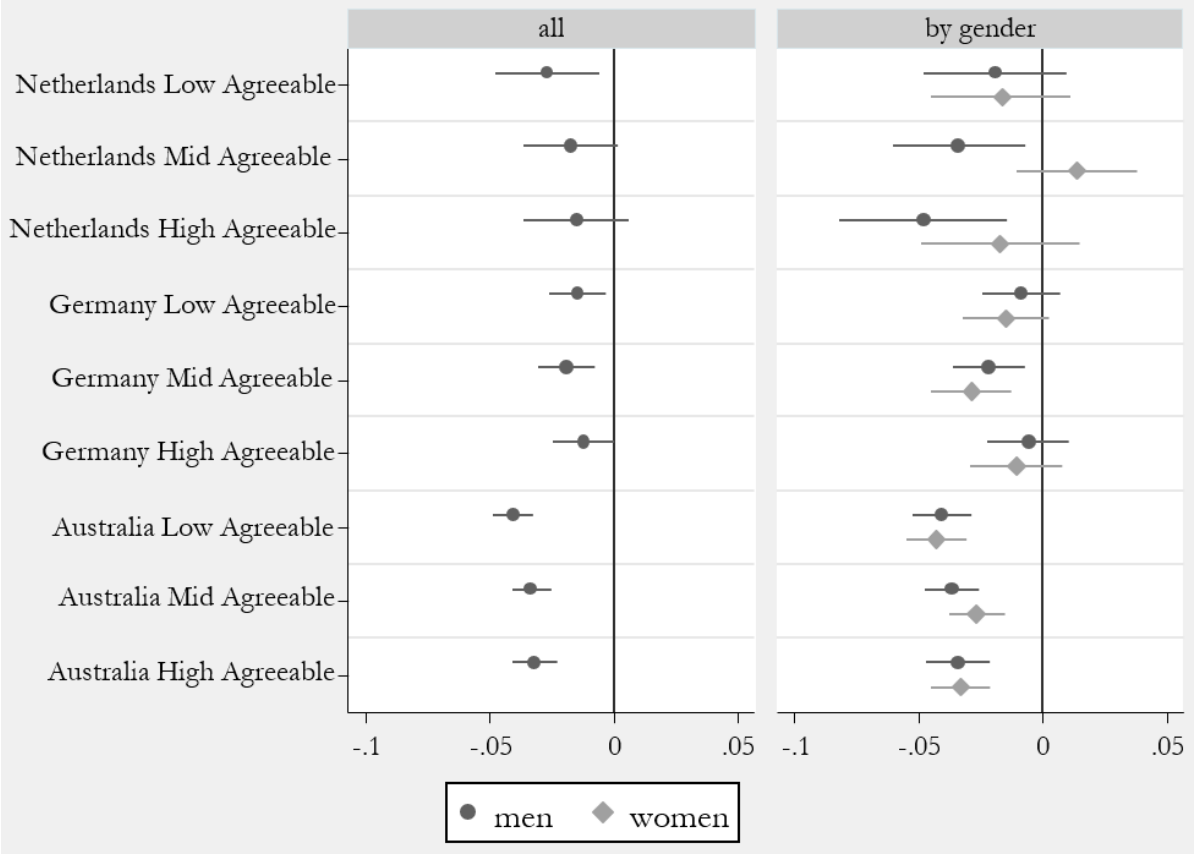
	pooled OLS			FE		
	NL	**GER**	**AUS**	**NL**	**GER**	**AUS**
job insecurity	**-0.076*** **	**-0.076*** **	**-0.080*** **	**-0.020*** **	**-0.015*** **	**-0.035*** **
	(0.0071)	(0.0034)	(0.0038)	(0.060)	(0.0034)	(0.0025)
agreeableness x job insecurity	+0.0061	-0.0007	+0.0026	+0.0009	+0.0019	+0.0040
	(0.0073)	(0.0034)	(0.0038)	(0.0060)	(0.0036)	(0.0027)
agreeableness	+7.090	+2.976	+2.402			
	(5.978)	(2.240)	(2.928)			
Observations	13,256	47,017	103,915	13,256	47,017	103,915
Individuals				3,803	18,937	14,054
R-squared	0.0588	0.0549	0.0491	0.0113	0.0112	0.0070
Joint significance of job insecurity and interaction	$F(2,3802)$ = 57.98 (p<0.00001)	$F(2,18936)$ = 256.62 (p<0.00001)	$F(2,14053)$ = 227.83 (p<0.00001)	$F(2,3802)$ = 5.41 (p=0.0045)	$F(2,18936)$ = 9.42 (p=0.0001)	$F(2,14053)$ = 104.32 (p<0.00001)

Notes: Models include control variables (see par. 4.4). Cluster-robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.10

Source: LISS data, SOEP data and HILDA data

The absence of a significant interaction effect between agreeableness and job insecurity found in pooled OLS remains in the fixed-effects models. Point estimates of effect size of job insecurity on mental health in Figure 4.4 suggest that agreeableness might slightly mitigate the detrimental effects of job insecurity on mental health, yet the differences between groups are insignificant.

Figure 4.4. *Point estimate and 95% CI of effect size of job insecurity on mental health by level of Agreeableness in fixed effects for the Netherlands/Germany/Australia, for all and by gender*



Source: LISS data, SOEP data and HILDA data

4.5.6 Neuroticism

Table 4.10 shows that in pooled OLS the interaction between neuroticism and job insecurity is significant in both Germany and Australia. The negative sign of the interaction effect implies that more neurotic respondents are in worse mental health at higher levels of job insecurity, and/or that an increase in job insecurity has a larger detrimental effect on mental health in more neurotic respondents.

Table 4.10. *Main and interaction effects of job insecurity and neuroticism on mental health in pooled OLS and fixed effects for the Netherlands/Germany/Australia*

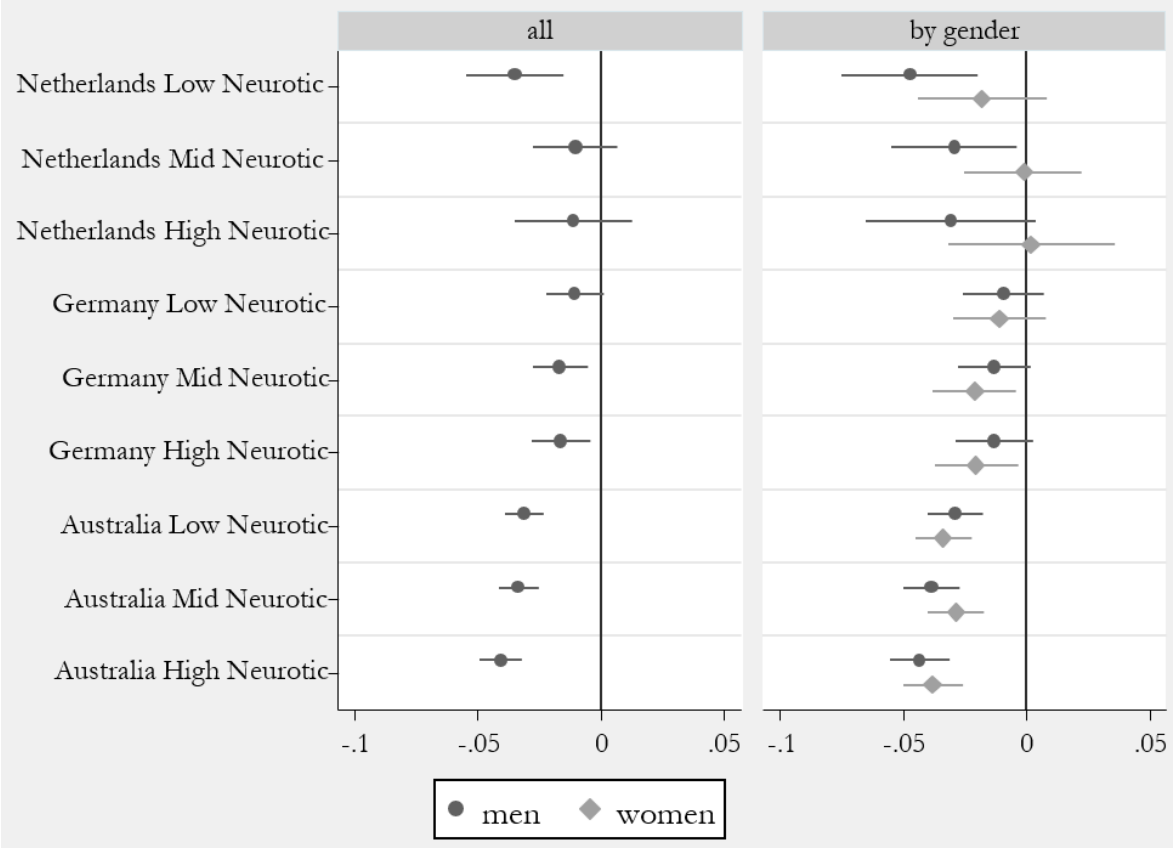
	pooled OLS			FE		
	NL	**GER**	**AUS**	**NL**	**GER**	**AUS**
job insecurity	**-0.042*** **	**-0.054*** **	**-0.064*** **	**-0.020*** **	**-0.014*** **	**-0.035*** **
	(0.0056)	(0.0030)	(0.003)	(0.0060)	(0.0034)	(0.0024)
neuroticism x job insecurity	-0.0072	**-0.0092*** **	**-0.0120*** **	+0.0107*	-0.0052	**-0.0050** **
	(0.0061)	(0.0031)	(0.0033)	(0.0063)	(0.0035)	(0.0025)
neuroticism	**-10.624** **	-3.633*	**-6.053*** **			
	(4.637)	(1.874)	(3.083)			
Observations	13,256	47,017	103,915	13,256	47,017	103,915
Individuals				3,803	18,937	14,054
R-squared	0.3264	0.1857	0.1624	0.0106	0.0115	0.0072
Joint significance of job insecurity and interaction	$F(2,3802)$ = 28.51 (p<0.00001)	$F(2,18936)$ = 163.86 (p<0.00001)	$F(2,14053)$ = 185.36 (p<0.00001)	$F(2,3802)$ = 7.51 (p=0.0006)	$F(2,18936)$ = 10.35 (p<0.00001)	$F(2,14053)$ = 103.27 (p<0.00001)

Notes: Models include control variables (see par. 4.4). Cluster-robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.10

Source: LISS data, SOEP data and HILDA data

Only for Australia the interaction effect between neuroticism and job insecurity found in pooled OLS remains significant in the fixed-effects models. Figure 4.5 shows that the point estimate of the effect size of job insecurity on mental health in Australia decreases monotonically with neuroticism. This is no different for men or for women (t=0.16; p=0.876). In the Netherlands, both the group low in neuroticism and the group high in neuroticism show a significantly larger detrimental effect of job insecurity on mental health than the group medium in neuroticism. This pattern is noticeable for men and for women alike, yet it is more pronounced for men.

Figure 4.5. *Point estimate and 95% CI of effect size of job insecurity on mental health by level of Neuroticism in fixed effects for the Netherlands/Germany/Australia, for all and by gender*



Source: LISS data, SOEP data and HILDA data

4.5.7 Robustness checks

In order to investigate how robust our results are when using a different assessment scale for mental health, we performed the same fixed-effects analysis as in the main analysis, but this time for two countries with the Mental Component Summary Scale (Ware et al., 1994). This variable could be constructed for Germany and Australia from all eight domains of health that the SF-36 comprises rather than from the mental health domain only. In German data this analysis led to two changes: the interaction between conscientiousness and job insecurity was no longer significant, while on the other hand the interaction between neuroticism and job insecurity became significant at the 10-per cent level (t=-1.81; p=0.070). In Australian data the use of the MCS rather than the MHI-5 also resulted in two changes: both the interaction between openness and job insecurity and the interaction between extraversion and job insecurity was no longer significant at the 5-per cent level, but rather at the 10-per cent level.

In another robustness check we performed the same analysis as the main analysis, yet this time limited to workers 25-68 years of age rather than for all workers up to 68 years of age. In Dutch and German data the restriction in age group led to no change in outcome whatsoever. In Australian data the age restriction led to two changes: the interaction between extraversion and job insecurity no longer being significant at the 5-per cent level but rather at the 10-per cent level; and the interaction between agreeableness and job insecurity becoming significant at the 5-per cent level (coefficient = 0.0067 (0.0034) t=1.97; p=0.049).

In order to investigate how the different sample periods affect our results, we performed the same analysis as the main analysis, this time selecting a similar time frame from 2008-2018 for all three countries. For the Netherlands this is no different from the main analysis, as the Dutch data are from 2008-2018. In German data the only change from this different time frame is that the interaction between conscientiousness and job insecurity is no longer significant. In Australian data the shorter time frame brought three changes: the interaction between openness and job insecurity is not merely significant at the 5-per cent level, but at the 1-per cent level; the interaction between extraversion and job insecurity is no longer significant; and the interaction between neuroticism and job insecurity is no longer significant. For extraversion this could be due to lack of statistical power, as the point estimate of the coefficient is not much different for the period from 2008-2018 or the period from 2000-2008. For neuroticism the point estimate of the coefficient for the period from 2008-2018 is markedly less negative than for the period from 2000-2008; possibly neuroticism in combination with job insecurity is more harmful for mental health when unemployment is falling and losing one's job might reflect badly on oneself (as in the years up to 2008) than when unemployment is stable (as in the years after 2008). For openness the point estimate of the coefficient for the period from 2008-2018 is markedly more negative than for the period from 2000-2008.

We found that in German data, with a one-year time lag between measurement of mental health and measurement of job insecurity, and in Dutch data with a smaller time lag, both the main effect is smaller than in Australian data and the interaction effects are insignificant. Therefore, as a final robustness check, we investigated how the results for Australia are affected if an artificial one-year time lag between measurement of mental health and measurement of job insecurity was created.

Table 4.11. *Main and interaction effects of job insecurity and Big5 traits on next year's mental health in fixed effects in Australia*

	Openness	**Conscientiousness**	**Extraversion**	**Agreeableness**	**Neuroticism**
job insecurity	-0.0067	-0.0070*	-0.0067	-0.0065	-0.0071*
	(0.0042)	(0.0042)	(0.0042)	(0.0042)	(0.0042)
Trait x jobinsecurity	-0.0009	-0.0030	-0.0002	+0.0045	+0.0059
	(0.0042)	(0.0044)	(0.0045)	(0.0046)	(0.0043)
Observations	94,245	94,245	94,245	94,245	94,245
Individuals	13,481	13,481	13,481	13,481	13,481
R-squared	0.0037	0.0033	0.0032	0.0034	0.0035

Notes: Models include control variables (see par. 4.4). Cluster-robust standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.10$

Source: HILDA data

Table 4.11 shows that if in Australia next year's mental health is regressed on this year's measurement of job insecurity, the effect size found is much smaller than with mental health regressed on simultaneously measured job insecurity (as in the main analysis). With a one-year lag, neither the main effect nor any of the interactions between job insecurity and the Big5 traits would differ significantly from zero. It seems therefore likely that the effect sizes in the Netherlands and Germany get attenuated by the 6- and 12-months lag (as in Dutch and German data respectively) between assessment of job insecurity and assessment of mental health (cf. Ford et al., 2014). The attenuation due to a time lag between assessments probably also explains why in Dutch and German data we find (almost) no evidence of a moderating effect of Big5 personality traits in the mental health effect of job insecurity.

4.6 Conclusion and discussion

In line with the result of earlier studies our data indicate that perceived job insecurity has detrimental mental health effects, with the effect size in Australia more than twice the effect size in Germany and almost twice the effect size in the Netherlands. The differences in findings could potentially be explained by institutional differences, but it is also plausible that these differences are due to a combination of the wording and content of the item measuring job insecurity and the time gap between measurement of perceived job insecurity and mental health.

In Australian data we find that extraversion has a mitigating effect on the mental health deterioration following job insecurity, and that openness to experience as well as neuroticism have an exacerbating effect on the mental health deterioration following job insecurity. These results are robust when controlling for several potentially confounding variables, such as employability, so it is e.g. not better employability that shields the highly extraverted from mental health deterioration when facing job insecurity. Our comparison of Australian, German, and Dutch effect sizes has furthermore suggested that the effect of job insecurity on mental health, as well as the moderating role of the Big5 traits therein, may wear off with the time that elapses between assessment of job insecurity and assessment of mental health.

Our results are at odds with the results from many lab studies investigating how the Big5 traits are related to stressor-related affect and coping effectiveness. These generally suggest that openness to experience, conscientiousness, and agreeableness are positively related to resilience. Our results are in line, though, with studies that suggest that people who are more open to experience are less resilient because of their physiological stress response (Bibbey et al., 2013; Xin et al., 2017). Our results are also in line with studies indicating that extraverted people are more resilient due to stressor-related affect (Leger et al., 2006; Schneider et al., 2012; Xin et al., 2017), coping effectiveness (Fredrickson & Joiner, 2002) or physiological stress response (Oswald et al., 2006). Finally, our findings are consistent with previous evidence that suggests that neurotic people are less resilient due to stressor-related affect (Leger et al., 2006; Schneider et al., 2012; Xin et al., 2017), coping effectiveness (Dunkley et al., 2014) or physiological stress response (Oswald et al., 2006; Xin et al., 2017).

Our results lend some external validity to the field investigating associations between the Big5 personality traits and the stress response, a field fraught with validity issues. For example, Hughes et al. (2011) suggested that for the neurotic individual laboratory stressors might seem so trivial in comparison to real life problems that a dampened stress reactivity in the lab would not be

unlikely. Our results show that some but not all Big5 traits matter for effectively dealing with a real-life stressor such as job insecurity over the course of years. The most resilient trait combination for an Australian worker who has to deal with perceived job insecurity seems to be a low level of openness, a high level of extraversion, and a low level of neuroticism.

Chapter 5

When 'can do' turns against you. Self-efficacy and the mental health effect of job insecurity

Abstract

It is as yet unclear whether self-efficacy is buffering or amplifying the mental health effect of stress. We analyse the role of self-efficacy in the mental health effect of perceived job insecurity using panel data from a representative sample of Dutch employees from 2008-2018. Job insecurity is a statistically significant predictor of mental health deterioration. Using a fixed effects estimator to control for time-invariant unobserved individual characteristics, we find that the detrimental mental health effect of job insecurity increases with baseline perceived generalized self-efficacy. This moderating effect is heterogeneous across groups: being a woman, having completed higher education, being employed in the public sector, having a permanent contract, having a higher income as well as having a partner and having children, all tend to come with a stronger negative influence of self-efficacy in the mental health effect of job insecurity. We discuss reasons for the harmful effects of self-efficacy. High self-efficacy and pretending to be in control may be good for mental health in most situations, but seems maladaptive and harmful for mental health in uncontrollable situations.

Keywords: self-efficacy; stress; job insecurity; mental health; labour market dynamics

5.1 Introduction

'Yes we can' or *'Wir schaffen das'* are popular slogans to mobilize the masses. These slogans exploit folk psychology that people who are convinced that they are able to achieve something are more likely to act, to persevere in the face of adversity, and hence to succeed. Bandura (1977) called the belief held by people that they, by their actions, are able to influence events in their lives 'self-efficacy' and found ample evidence to consider it "the foundation of human motivation, performance accomplishments, and emotional well-being" (Bandura, 2010). There is some ambiguity in the literature, however, about the effect that self-efficacy has on the stress response. Schönfeld et al. (2017) discusses a large amount of evidence indicating that self-efficacy diminishes the negative mental health effects of stressors and a few studies that find no effect of self-efficacy on the mental health effect of stressors or even find the opposite, that self-efficacy increases the negative mental health effects of stressors. The studies on the subject often involve somewhat imprecise notions of stress, such as daily stress, study stress, or the stress from ageing, and often are limited in measurement moments and number of respondents.

The main contribution of this study is that it tests the role of self-efficacy in stress coping effectiveness by investigating to what extent the mental health deterioration following job insecurity is moderated by baseline self-efficacy. Job insecurity is a stressor that has been shown to bring about a mental health deterioration in the working age population (Green, 2011; see also chapter 2 of this dissertation). We use a large, representative household longitudinal data set for the Netherlands (LISS) spanning 11 years. We exploit the panel structure of the data by a fixed-effects (FE) estimation strategy to control for any time-invariant unobserved individual characteristics.

We find that self-efficacy is a clear handicap when dealing with a stressor such as job insecurity: the mental health deterioration brought about by job insecurity increases statistically significantly with baseline self-efficacy. This result is driven by the female subsample. The gender difference is statistically significant.

The next section discusses the previous literature on the effect of self-efficacy on mental health and on the stress response. Section 3 presents the data used in the analysis, section 4 explains the estimation strategy, section 5 reports the regression results, section 6 presents robustness checks, and section 7 concludes.

5.2 Definitions and empirical evidence

5.2.1 Self-efficacy

Self-efficacy was conceptualized by Bandura (1977) as "the conviction that one can successfully execute the behavior required to produce [certain] outcomes" (p. 193). It is distinct from an outcome expectancy, which refers to the "estimate that a given behaviour will lead to certain outcomes" (p. 193). Self-efficacy is merely about one's own ability to execute the required behaviour. The concept was initially related to a specific situation or domain, such as athletic self-efficacy or mathematical self-efficacy. Later it was generalized to "general beliefs in one's ability to

respond to and control environmental demands and challenges" (Schwarzer & Jerusalem, 1995, p. 35). Self-efficacy is goal-directed, future-oriented, relevant across situations, cognitive, self-focused, about perceived ability and is not about perceived intention. It is closely related to yet conceptually different from concepts such as hope, optimism and self-esteem. It differs from hope in that hope does involve perceived intention, the determination to achieve one's goals. It differs from optimism in that optimism is not self-focused (Rand, 2018). It differs from self-esteem in that self-esteem judges the overall value of the self, whereas self-efficacy appraises capabilities for performance.

Self-efficacy is generally assessed through structured self-report. Efficacy expectations can vary in magnitude (the level of performance believed to be achievable), generality, and strength (degree of confidence in attaining a certain level of performance; Bandura, 1977).

Self-efficacy is not a static characteristic. It can be altered by information from four sources: firsthand behavioural experience, observation of someone else's experience, evaluation of one's own emotional and physiological states, and verbal persuasion (Bandura, 1977; for an anecdotal illustration of the latter see Robertson, 2021).

Self-efficacy influences behavioural outcomes through four processes: self-efficacy influences decisions about which courses of action to pursue; the level of effort and task perseverance; the level of accomplishment, and affective experience (Bandura, 1997). It seems likely that, as a result, self-efficacy is also related to mental health.

5.2.2 Self-efficacy and mental health

Anxiety and depression are the most common mental health problems. A suggested mechanism for the relationship between anxiety and self-efficacy is that anxiety could be the result of perceptions of low self-efficacy in coping with potential threats and scary trains of thought (Lloyd Williams, 1995). Thus, low self-efficacy could lead to avoidant behaviour, which then sustains anxiety.

A suggested mechanism for the relationship between depression and self-efficacy is that low self-efficacy could lead to insufficiently initiating or persevering with behaviours that could lead to highly valued outcomes, such as developing satisfying relationships with others, causing depression (Maddux & Meier, 1995). This could then lead to despondency and apathy. People need not be actually inept, but may impose high standards of achievement on themselves that they are unable to attain. As such, even high achievers can be prone to feelings of worthlessness and inadequacy.

Empirical studies examining the relationship between self-efficacy and mental health have found that higher self-efficacy is associated with fewer symptoms of mental distress (e.g. Cutrona & Troutman, 1986; Ehrenberg et al., 1991; McFarlane et al., 1995). Whether self-efficacy cognitions are merely correlated with mental health problems, a cause of mental health problems, or both, is still controversial (Maddux & Meier, 1995).

Depressed people generally have more realistic perceived self-efficacy than the non-depressed. The non-depressed appear to have overly positive perceptions of self-efficacy (Moore & Fresco, 2012; Taylor & Brown, 1988). Depressed people also have more realistic assessment of their ability to control an outcome. The non-depressed tend to overestimate their control (Thompson, 1999). Preserving such a biased view when confronted with negative feedback

requires actively ignoring or forgetting, explaining away, denying, or other cognitive processes to make the information as unthreatening to the self-view as possible.

5.2.3 Self-efficacy and the mental health effect of stress

In stressful situations, high self-efficacy may produce the initiation and perseverance of important activities and prevent avoidant behaviour, and may thus be beneficial for mental health. At the same time, stressful situations are also likely to provide feedback on people's actual adequacy in the circumstances, which may jeopardize any biased view of their own ability. The empirical evidence on the role of self-efficacy in the mental health effect of stress mixed (Schönfeld et al., 2017).

In a small-scale study, Holahan and Holahan (1987) examined the role of self-efficacy in the mental health effects of adjustment to ageing and found self-efficacy to be negatively related to depressive symptoms one year afterwards. The mental health enhancing effect of self-efficacy operated not only directly but also indirectly through an effect on social support. Luszcynska et al. (2009) reviewed the evidence concerning the role of self-efficacy in the mental health effects of collective traumatic events and concluded that self-efficacy is negatively related to general distress and PTSD symptom severity, both in cross-sectional and in longitudinal studies. Schönfeld et al. (2016) analysed the role of self-efficacy in the mental health effects of daily life stress of students cross-sectionally. The results indicated that self-efficacy is negatively related to psychopathological symptoms and positively related to subjective well-being. Schönfeld et al. (2019) investigated the role of self-efficacy in the mental health effects of daily life stress of students longitudinally and demonstrated self-efficacy to be directly and indirectly negatively related to psychopathological symptoms and positively related to subjective well-being. Indregard et al. (2018) examined the role of self-efficacy in the mental health effects of emotionally demanding work situations of health- and social workers cross-sectionally and found self-efficacy to be negatively related to mental distress. Maciejewski et al. (2000) analysed the role of self-efficacy in the mental health effect of stressful life events and described self-efficacy to be negatively related to depressive symptoms. One group of respondents, the ones with prior depression, not only suffered a direct mental health effect of the stressful life events but also an additional indirect mental health effect resulting from a negative impact on their self-efficacy.

Next to these studies that show a buffering effect on mental health from self-efficacy, there are also studies that show no effect or even an amplifying effect from self-efficacy. Bisschop et al. (2004) investigated the role of self-efficacy in the mental health effects of chronic disease and found self-efficacy to be unrelated to depressive symptoms for six out of seven chronic diseases. Schiaffino et al. (1991) examined the role of self-efficacy in the mental health effects of rheumatoid arthritis. The results indicated that self-efficacy is unrelated to depressive symptoms at low levels of pain and positively related to depressive symptoms for high levels of pain. The authors suggest that "seeking control in an uncontrollable situation may be maladaptive" (p. 156).

Although perceptions are to some extent malleable, job insecurity itself is a stressor that is generally not dependent on the individual's behaviour, and the uncertainty it brings does share some characteristics with an uncontrollable situation (De Witte, 1999). As earlier studies have shown that self-efficacy may be maladaptive in case of uncontrollable life events, we expect self-efficacy to amplify the detrimental mental health effect of job insecurity.

5.3 Data and descriptive statistics

5.3.1 Data sources and selection

Our empirical analysis is based on panel data from the Netherlands. Data are from the LISS (Longitudinal Internet Studies for the Social sciences) panel administered by CentERdata (Tilburg University, the Netherlands; Centerdata, n.d.; Scherpenzeel, 2011). This is a representative sample of Dutch households and individuals, who participate in annual surveys covering a large variety of domains, including work life, income, health, well-being, and personality. The LISS panel contains data from 2008-2018 on around 5,000 households comprising around 7,500 individuals.

For the purposes of these analyses only employees in permanent or temporary employment, on-call employees or temp-staffers are considered; self-employed/freelance employees, independent professionals, directors of limited liability companies or majority shareholder directors are filtered out, as for these groups the wording of the item on job insecurity (next chapter) is ambiguous. The analysis is limited to employees below the age of 68 years.[22]

Table 5.1 provides descriptive statistics of the respondents.

Table 5.1. *Demographic and job-related characteristics of respondents, for all and by gender*

	all			**men**			**women**		
	mean	sta dev	obs	mean	sta dev	obs	mean	sta dev	obs
age	48.00	9.95	7,006	48.78	9.55	3,673	47.13	10.30	3,333
hours per week	34.54	10.24	7,006	39.98	7.92	3,673	28.55	9.11	3,333
temp contract	0.06	0.24	7,006	0.05	0.22	3,673	0.07	0.26	3,333
public sector	0.44	0.50	7,006	0.30	0.46	3,673	0.59	0.49	3,333
net monthly income (EUR)	1,883	829	7,006	2,250	806	3,673	1,479	645	3,333
low education[a]	0.23	0.42	7,006	0.23	0.42	3,673	0.23	0.42	3,333
mid education[b]	0.38	0.49	7,006	0.38	0.48	3,673	0.38	0.49	3,333
high education[c]	0.39	0.49	7,006	0.39	0.49	3,673	0.38	0.49	3,333

[a] primary school or intermediate secondary education

[b] higher secondary education or intermediate vocational education

[c] higher vocational education or university

Source: LISS data

In LISS, there is a time lag between measurement of the dependent variable, i.e. mental health, and the independent variable, i.e job insecurity. The mental health items are administered in November, while the job insecurity item is administered in June. As to not confound any effect of perceived job insecurity on mental health with the effect of unemployment on mental health, our analysis is limited to respondents who still have a job at the time of measurement of mental health.

[22] The analysis is limited to employees who work at least 12 hours a week. In the robustness check in Chapter 2 this limitation turned out inconsequential for sign or size of the mental health effect of job insecurity.

5.3.2 Measuring mental health

In the LISS, five items from the 36-item Short-Form Health Survey Questionnaire (SF-36) are administered. These items collectively form the Mental Health Inventory (MHI-5). The items cover two major mental health dimensions (anxiety and depression) and have good psychometric properties and validity (see e.g. Rumpf et al., 2001; Strand et al., 2003; Thorsen et al., 2013). The MHI-5 scale runs from 0 to 100, with higher scores indicating better mental health.

Table 5.2 shows levels of levels of mental health in the Netherlands. Men are generally in better mental health than women.

Table 5.2. *Descriptive statistics on mental health, for all and by gender*

	all			**men**			**women**		
	mean	sta dev	obs	mean	sta dev	obs	mean	sta dev	obs
mental health	76.92	15.15	7,006	78.49	14.44	3,673	75.19	15.71	3,333

Source: LISS data

5.3.3 Measuring job insecurity

In the LISS, job insecurity is measured with the item "Do you think that there is any chance that you might lose your job in the coming 12 months? You can indicate this in terms of a percentage. 0% means that you are sure you will not lose your job, and 100% means that you are sure that you will lose your job". This item was as of 2010 only administered to heads of households and partners. It was administered every June/July (except in 2008, when it was administered in June/September).

Table 5.3 shows levels of job insecurity. Differences in job insecurity between men and women appear to be small and are statistically insignificant.

Table 5.3. *Descriptive statistics on job insecurity, for all and by gender*

	all			**men**			**women**		
	mean	sta dev	obs	mean	sta dev	obs	mean	sta dev	obs
job insecurity	17.21	25.26	7,006	16.95	24.90	3,673	17.50	25.65	3,333

Source: LISS data

5.3.4 Measuring self-efficacy

In the LISS, self-efficacy was measured twice, in August 2008 as part of a project Feedback Mechanisms in Matrix Questions, and in February 2012 as part of a project Proactive Coping and Health Behaviour. The Schwarzer and Jerusalem (1995) Generalized Self-Efficacy Scale was administered to 2,504 (2008) and 3,126 (2012) respondents respectively, with partial overlap between the subsamples. Respondents rated on a four-point scale ranging from '1=not at all true' through '4=exactly true' how statements describe them. Examples of items are: 'I can always manage to solve difficult problems if I try hard enough' and 'I can usually handle whatever comes my way'. The scale shows good internal consistency, with Cronbach's alpha in our analytical sample equal to 0.85. A composite score with a range from 10 to 40 is created by summing up the responses. Generalized self-efficacy tends to change slowly if it changes at all (Cervone et al., 2004). Our results give no reason to doubt this with a test-retest reliability (Cronbach's alpha) for respondents whose self-efficacy was administered in both 2008 and 2012 of 0.70. Therefore, we assume that the score administered in 2008 is also valid for the other years; if the score for 2008 is missing, then we assume that the score administered in 2012 is also valid for the other years. Table 4 shows that the absolute scores are no different from respondents in other comparable samples (Scholz et al., 2002). Table 5.4 shows furthermore that gender differences in self-efficacy are consistent with the existing evidence (Löve et al., 2012; Luszczynska et al., 2005): as in many countries, men score higher on self-efficacy than women. For the remainder of our analysis, we use centred and standardized scores, to allow for easier interpretation of main and interaction effects.

Table 5.4. *Descriptive statistics for self-efficacy, for all and by gender*

	all			**men**			**women**		
	mean	sta dev	indiv	mean	sta dev	indiv	mean	sta dev	indiv
Self-efficacy	30.84	4.39	1,597	31.48	4.40	801	30.20	4.29	796

Source: LISS data

5.4 Estimation strategy

In order to investigate the role of self-efficacy in the effect of job insecurity on mental health outcomes we estimate in pooled OLS:

$$MH_{it} = a + v_{it}\,\psi + v_{it}\,\pi'_i\,\omega + \pi_i\,\chi + x'_{it}\,\beta + \pi_i\,x'_{it}\,\zeta + z'_{it}\,\gamma + \pi_i\,z'_{it}\,\varsigma + \varkappa_s\,\eta + \pi_i\,\varkappa_s\,\theta + \tau_t\,\iota + u_{it},$$

where MH_{it} is mental health for individual i at time t, a is the intercept, v_{it} is job insecurity for individual i at time t, ψ is the coefficient of job insecurity, π_i is the self-efficacy score for individual i (assumed to be constant at least for the time span of the analysis; its stability is tested in robustness check), ω is a the coefficient of the interaction between job insecurity and self-efficacy, χ is the

coefficient of the main effect of self-efficacy, x'_{it} is a 7-dimensional row vector of time-varying explanatory variables (personal characteristics including age squared, living with children in the household, net personal income, and job characteristics including temporary employment, tenure, employment in a small establishment, number of hours worked per week), β is a 7-dimensional column vector of coefficients of the time-varying explanatory variables, ζ is a 7-dimensional column vector of coefficients of the interaction between self-efficacy score and time-varying explanatory variables (as we do not *a priori* assume that the effect of these variables on mental health is the same for people scoring high or low on self-efficacy), z'_{it} is an 11-dimensional row vector of explanatory variables that show little or constant variation in time (personal characteristics including age, living with a partner, dummies for education level, dummies for degree of urbanisation of area of residence[23]), γ is an 11-dimensional column vector of coefficients of the time-nonvarying explanatory variables, ς is an 11-dimensional column vector of coefficients of the interaction between self-efficacy score and time-nonvarying explanatory variables (as we do not *a priori* assume that the effect of these variables on mental health is the same for people scoring high or low on self-efficacy), $\varkappa_s$ are sector dummies and τ_t year dummies and, η, θ and ι are column vectors of parameters, and u_{it} is an idiosyncratic error term. We correct standard errors for correlations across multiple observations for each individual. The purpose of this analysis, wherein we exploit both between-variation and within-variation, is to establish if ω, the coefficient of the interaction between job insecurity and self-efficacy, is significant.

Although several variables to control for observed heterogeneity are included, a good deal of unobserved heterogeneity is likely to remain. Such an unobserved characteristic could be optimism, which no doubt influences perceived job insecurity, affects mental health (Conversano et al., 2010) and is correlated with self-efficacy (Rand, 2018). Omitted variables like these could lead to inconsistent estimates if not properly accounted for. If we assume such unobserved characteristics to be time-invariant, at least within a limited period of time, and if we further assume strict exogeneity of the explanatory variables, then the fixed-effects method is capable of solving the endogeneity problem resulting from omitted variables bias. Therefore, we subsequently estimate in fixed effects:

$$MH_{it} = a + v_{it}\,\psi + v_{it}\,\pi'_i\,\omega + \pi_i\,\chi + x'_{it}\,\beta + \pi_i\,x'_{it}\,\zeta + \varkappa_s\,\eta + \pi_i\,\varkappa_s\,\theta + \tau_t\,\iota + c_i + u_{it},$$

where c_i is an individual-specific effect. The purpose of this analysis, wherein we exploit both between-variation and within-variation, is again to establish if ω, the coefficient of the interaction between job insecurity and self-efficacy, is significant. This estimated coefficient of the interaction between job insecurity and self-efficacy allows us to determine how the within-effect of job insecurity on mental health changes as the self-efficacy score changes between individuals. As there is, by design[24], no within-variation in self-efficacy scores, the interaction captures purely the between-variation in within-variation (Giesselman & Schmidt-Catran, 2020).

[23] Not available in HILDA

[24] As self-efficacy is made time-invariant by using either the 2008 or 2012 score for all the years (see 5.3.4).

5.5 Results

5.5.1 Main effect of self-efficacy and job insecurity on mental health

In order to examine whether main effects found for both job insecurity and self-efficacy are consistent with existing evidence, we start with pooled OLS regressions with job insecurity and self-efficacy as independent variables, without any interaction effect between self-efficacy and job insecurity. Table 5.5 shows a significant negative association between job insecurity and mental health, suggesting that respondents with more job insecurity are in worse mental health, which is in line with earlier studies (Green, 2011; Reichert & Tauchmann, 2017; see also chapter 2 of this dissertation). A consistently positive association with mental health is found for self-efficacy. The results are in line with previous studies that concluded that general self-efficacy appears a predictor of mental health.

Table 5.5. *Main effects of job insecurity and self-efficacy on mental health in pooled OLS, for all and by gender*

	all	**men**	**women**
Job insecurity	**-0.079*** **	**-0.090*** **	**-0.066*** **
	(0.010)	(0.014)	(0.015)
Self-efficacy	**+3.023*** **	**+2.599*** **	**+3.456*** **
	(0.375)	(0.447)	(0.613)
Number of observations	7,006	3,673	3,333
R-squared	0.0983	0.1078	0.0941

Notes: Models include control variables. Self-efficacy are standardized scores (see par. 5.4). Cluster-robust standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.10$

Source: LISS data

The next step is to investigate the specific role of self-efficacy in dealing with job insecurity.

5.5.2 Interaction effect of self-efficacy and job insecurity on mental health

Table 5.6 shows that in pooled OLS the interaction between self-efficacy and job insecurity is insignificant for all and for men and women separately. Once between-variation is excluded and only within-variation is considered, as in the fixed effects models, there appears to be a significant interaction effect between self-efficacy and job insecurity. The interaction effect indicates that a high level of self-efficacy exacerbates the detrimental mental health effects of job insecurity to such an extent that a person one standard deviation above the average level of self-efficacy suffers more than twice as much from any increase in perceived job insecurity as the average person. The interaction effect appears to be driven by the female subsample. The difference in interaction (self-efficacy * job insecurity) between men and women is significant: the three-way interaction (female * self-efficacy * job insecurity) coefficient is -0.036 (se=0.0156; t=-2.28; p=0.023).

Table 5.6. *Main and interaction effect of job insecurity and self-efficacy on mental health in pooled OLS and fixed effects, for all and by gender*

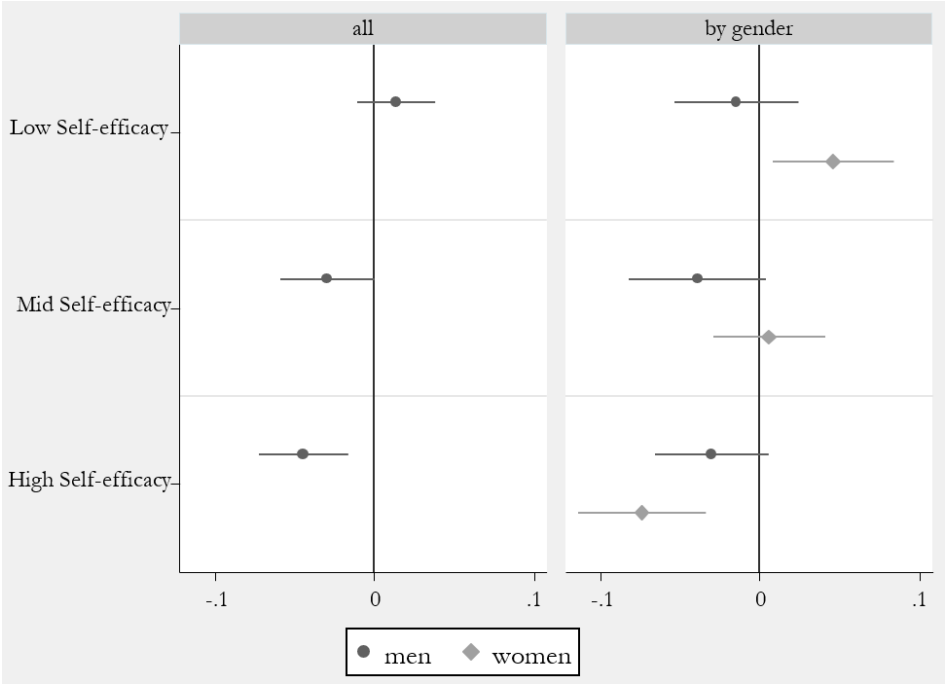
	OLS	**FE**	**FE**	**OLS**	**FE**	**FE**	**OLS**	**FE**	**FE**
	all	**all**	**all**	**men**	**men**	**men**	**women**	**women**	**women**
job insecurity	**-0.076*** **	**-0.021** **	**-0.019** **	**-0.084*** **	**-0.028** **	**-0.026** **	**-0.071*** **	-0.013*	-0.019*
	(0.010)	(0.008)	(0.008)	(0.013)	(0.012)	(0.011)	(0.015)	(0.012)	(0.012)
self-efficacy x job insecurity	-0.0165*		**-0.026*** **	+0.0002		-0.0084	-0.0282*		**-0.044*** **
	(0.0095)		(0.0078)	(0.012)		(0.0117)	(0.0148)		(0.0103)
self-efficacy	-0.109			-14.858			20.920		
	-8.905			-12.655			-13.110		
Observations	7,006	7,006	7,006	3,673	3,673	3,673	3,333	3,333	3,333
Individuals		1,597	1,597		801	801		796	796
R-squared	0.1120	0.0099	0.0197	0.1256	0.0150	0.0260	0.1199	0.0152	0.0318

Notes: Models include control variables. Self-efficacy are standardized scores (see par. 5.4). Cluster-robust standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.10$

Source: LISS data

Figure 5.1 shows point estimates of effect size of job insecurity on mental health for groups (tertiles) high, medium, and low in self-efficacy.[25] For the whole sample, these estimates decrease monotonically with increasing self-efficacy, a pattern more prominently demonstrated by the female subsample.

Figure 5.1. *Point estimate and 95% CI of effect size of job insecurity on mental health by level of self-efficacy in fixed effects, for all and by gender*



Source: LISS data

[25] Note that overlap in CIs between groups does not imply absence of a significant difference in effect size of job insecurity on mental health between respondents high, medium, or low in self-efficacy (see e.g. Wolfe & Hanley, 2002).

5.5.3 Robustness check

It is conceivable that self-efficacy changes as a result of job insecurity (as self-esteem did in Kinnunen et al., 2003). Though too limited in statistical power to make a firm statement, our results do not indicate such a change: for the 76 respondents who answered the self-efficacy items in 2008 and in 2012 the change in self-efficacy appears unrelated to the change in job insecurity (r=0.0057; p=0.9612). Even so, in a robustness check we limited our fixed-effects analysis to the years post-2011, such that both measurements of self-efficacy precede any change in mental health and any change in job insecurity. Also in this case the interaction effect of self-efficacy and job insecurity on mental health remains significant, again for women only. We do find, however, that the interaction effect is stronger in the years closer to the measurement of self-efficacy than in later years: up to 2013 the interaction effect was -0.032*** (0.012) with n=1,540, as of 2013 the interaction effect was -0.013 (0.010) with n=997. This decrease in influence of self-efficacy could be an indication of the initial measurement becoming less relevant with time due to changes in self-efficacy.

5.5.4 Exploratory analysis of interaction effect heterogeneity

The interaction effect between self-efficacy and job insecurity on mental health appears to be different for men and women. In this section we investigate to what extent the interaction effect differs according to other characteristics as well. Table 5.7 shows that self-efficacy is more detrimental for the mental health effect of job insecurity for women with a partner than women without a partner; that self-efficacy is more detrimental for the mental health effect of job insecurity for men and women with higher vocational and university education rather than other forms of education; that self-efficacy is more detrimental for the mental health effect of job insecurity for men in public sector employment than men in private sector employment; and that self-efficacy is more detrimental for the mental health effect of job insecurity for women with a permanent contract. Some of these characteristics appear to be cumulative, in the sense that having several of these characteristics exacerbates the detrimental mental health effect of job insecurity when self-efficacy is higher.

It is interesting that most of the characteristics that tend to come with a stronger influence of self-efficacy in the mental health effect of job insecurity, such as having a partner, having completed higher education, being employed in the public sector, having a permanent contract, and having a higher income, are negatively associated with perceived job insecurity and positively associated with self-efficacy. It is not inconceivable that such characteristics contribute to a belief of control over one's work life that may start to waver as the perception of risk of job loss dawns.

Table 5.7. *Interaction effect of self-efficacy and perceived job insecurity on mental health by demographic and job-related characteristics in fixed effects, for all and by gender*

	all	**men**	**women**
< 45 years of age	**-0.030****	+0.017	**-0.046*****
	(0.013)	(0.029)	(0.015)
	N=711	333	378
≥ 45 years of age	**-0.027*****	-0.020	**-0.042*****
	(0.010)	(0.013)	(0.016)
	N=1,089	581	508
no partner	+0.006	+0.010	-0.0098
	(0.016)	(0.025)	(0.023)
	N=428	199	229
with partner	**-0.036*****	-0.014	**-0.055*****
	(0.008)	(0.013)	(0.012)
	N=1,279	660	619
no children	-0.015	+0.007	**-0.047****
	(0.014)	(0.019)	(0.020)
	N=921	464	457
with children	**-0.038*****	-0.026*	**-0.054*****
	(0.009)	(0.014)	(0.012)
	N=842	433	409
primary and intermediate secondary education	-0.002	+0.023	-0.033
	(0.017)	(0.026)	(0.021)
	N=420	210	210
higher secondary and intermediate vocational education	-0.020*	-0.003	**-0.032****
	(0.011)	(0.016)	(0.015)
	N=613	303	310
higher vocational and university education	**-0.058*****	**-0.044****	**-0.084*****
	(0.013)	(0.020)	(0.019)
	N=616	316	300
public sector	**-0.045*****	**-0.053****	**-0.043*****
	(0.015)	(0.027)	(0.016)
	N=705	238	467
private sector	-0.017*	+0.007	**-0.043*****
	(0.009)	(0.011)	(0.015)
	N=952	588	364
permanent contract	**-0.029*****	-0.012	**-0.049*****
	(0.008)	(0.012)	(0.011)
	N=1,518	773	745
temporary contract	+0.019	+0.025	+0.031
	(0.030)	(0.034)	(0.052)
	N=238	96	142
with partner & higher vocational and university education	**-0.068*****	-0.045*	**-0.124*****
	(0.015)	(0.023)	(0.019)
	N=490	266	224
with partner & higher vocational and university education & public	**-0.080****	-0.054	**-0.147*****
	(0.035)	(0.039)	(0.035)
	N=286	121	165
with partner, no children & higher vocational and university education	-0.049	-0.043	**-0.179*****
	(0.031)	(0.040)	(0.059)
	N=246	134	112
with partner, with children & higher vocational and university education	**-0.071*****	-0.039*	**-0.106*****
	(0.015)	(0.021)	(0.021)
	N=308	169	139
net monthly income ≤ €1,650	**-0.030*****	-0.024	**-0.036*****
	(0.010)	(0.022)	(0.012)
	N=821	N=214	N=607
net monthly income > €1,650 and ≤ €2,650	-0.010	+0.004	**-0.088*****
	(0.014)	(0.016)	(0.032)
	N=859	N=555	N=304
net montly income > €2,650	-0.033	-0.034	-0.009
	(0.021)	(0.023)	(0.092)
	N=272	N=218	N=54

Notes: Models include control variables. Self-efficacy are standardized scores (see par. 5.4). Cluster-robust standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.10$

Source: LISS data

5.6 Conclusion and discussion

Our results indicate that, in general, higher self-efficacy exacerbates the detrimental mental health effect of perceived job insecurity. This effect differs by gender and is also heterogeneous across other groups. Being a woman, having completed higher education, being employed in the public sector, having a permanent contract, having a higher income as well as having a partner and having children, all tend to come with a stronger negative influence of self-efficacy in the mental health effect of job insecurity.

A plausible explanation would be that having completed higher education, being employed in the public sector, having a permanent contract, and having a higher income all contribute to a partly illusory belief of control over one's work life, for many an important aspect of life. When in spite of this belief of control, and against the odds, the stability of the job is threatened, which is generally an uncontrollable situation that cannot be changed, not even by the 'can do' mentality that self-efficacy brings, there is not only the threat of job loss to deal with, but also the accompanying threat of loss in belief of control. Having either to suppress the emotional and cognitive dissonance between reality and the prevailing story about the self or having to change the story about the self in the world, may be cause for distress (Peters et al., 2017; Stephan et al., 2016). The greater the discrepancy between the belief of being in control and reality, the more distress this is likely to cause.

But then why would the belief in one's ability to respond to and control environmental demands and challenges be particularly harmful for the mental health of women, and in particular women with a partner and children, who come to find themselves in the uncontrollable situation of being job insecure? The argument might be that these women have it all: a family and a job. Having a family is for women associated with better mental health, so may be favourable to their well-being, yet it is also associated with lower self-efficacy. This self-efficacy may be hoisted by their belief in control from their work. The latter appropriately boosted by having completed higher education and a permanent contract, they stand to lose not only a job, but also the firm yet partly illusory belief in control and financial independence that comes with it. By becoming job insecure, they risk to be reduced to a role wherein they (believe they) are much less in control.

A limitation of this study is that self-efficacy is measured only twice for some and only once for most respondents. We find few indications of instability, yet are unable to monitor over the whole period to what extent self-efficacy changes as a result of job insecurity (or other factors).

Our results indicate that the general belief in one's ability to respond to and control environmental demands and challenges (Schwarzer & Jerusalem, 1995) is maladaptive in the unpredictable and uncontrollable event of perceived job insecurity. Faced with an unpredictable and uncontrollable event, the extra perseverance that self-efficacy might bring in other situations is unable to bring reality closer to the self-view. Unpredictable and uncontrollable events are thus a threat to the self-view and are more harmful the more aggrandized the self-efficacy and control views are. Although generalized self-efficacy is less prone to disconfirmation than lower order postulates (Janoff-Bulman, 1989), the threat of job loss is apparently important enough to be a threat to such a higher order postulate.

Self-efficacy may be helpful to keep going when dealing with the daily nuisance and challenges of student life (Schönfeld et al., 2016; Schönfeld et al., 2019) or when learning to live with the inconveniences of gradually getting older (Holahan & Holahan, 1987). Yet having a strong

belief in one's ability to respond to and control environmental challenges when e.g. confronted with severe pain (Schiaffino et al., 1991), traumatic brain injury (Kendall & Terry, 2009), or the risk of losing one's job, i.e. when a clear discrepancy between perceived self-efficacy and reality is hard to deny. An intensification of efforts to self-deceive in order to uphold prior self-efficacy beliefs as well as the updating of self-efficacy beliefs in the light of new evidence are both a likely cause of distress. As long as a belief of control can be maintained, mental health is likely to benefit. Yet when this belief is seriously challenged by reality, higher self-efficacy seems to mean more suffering. The 'can do' mentality then turns against oneself.

Chapter 6

Conclusion and discussion

6.1 Summary of research findings

This dissertation started from the notion that perceived job insecurity is a likely stressor and hence may be detrimental to subjective well-being. In particular, the distress from perceiving the likelihood of job loss may be detrimental for mental health. Although previous empirical research had provided insight into the link between perceived job insecurity and mental health, many questions remained unanswered. These include not only to what extent job insecurity has a mental health effect when controlling for (unobserved) individual characteristics, but also to what extent there is effect heterogeneity. This dissertation therefore focused on the mental health effect of job insecurity controlling for individual characteristics as well as the moderating effect of various demographic, sociological, and psychological variables. More specifically, it examined, next to a main effect, the role of gender, age, family situation, education, income, type of employment contract, religiousness, personality, and self-efficacy. The main findings of the four empirical chapters of this dissertation are outlined below.

6.1.1 The bigger they come, the harder they fall. Dealing with job insecurity

The association between job insecurity and mental health has been amply studied in the epidemiological and psychological literature (see e.g. Llosa et al., 2018; Sverke et al., 2002). Most studies, however, do not address the endogeneity problem. Exceptions are Green (2011) and Reichert and Tauchmann (2017), who control for time-invariant unobserved characteristics by using a fixed effects estimator. Chapter 2 followed a similar strategy using data from the Netherlands for 2008-2018 and furthermore provided an extensive analysis of effect heterogeneity.

The results of this chapter indicated a rather small mean effect of perceived job insecurity on mental health, more or less equivalent to the impact of the death of a parent to an adult. The average detrimental effect of an increase in job insecurity from 0 to 100 per cent is about 2 points on a mental health scale of 0 to 100. For comparison: the death of a parent decreases mental health by 1.1 points, while being diagnosed with cancer decreases mental health by 7.2 points and separation from a partner by 8.8 points. These results are based on own calculations on the same data set, so are well comparable. The effect size is robust to different operationalisations of perceived job insecurity. It is somewhat larger than the effect found by Reichert and Tauchmann (2017) for Germany, and smaller than the effect found by Green (2011) for Australia. If part of the effect is attributable to reverse causality, the effect found in the fixed effects models must be an upper bound on the causal effect.

The mean effect of perceived job insecurity on mental health may be rather small, but some groups have clearly more trouble than others in dealing with perceived job insecurity. For men, a significant detrimental effect of perceived job insecurity on mental health is found, while no such effect has been found for women. This confirms findings for Australia (Green, 2011). Possibly the social norm of having paid employment is stronger for men (e.g. Clark, 2003). There are no indications in our results that men are particularly afflicted due to their breadwinnership. On the contrary, it appears that men whose partner provides for a sizeable share of the family income suffer more when confronted with job insecurity than men who are breadwinners.

Possibly it causes more anxiety for men to become dependent on the partner's income than merely not being able to cater for the family. In addition, negative effects of perceived job insecurity on mental health are found predominantly among men with intermediate levels of education and, to a lesser extent, among men with higher levels of education. A possible explanation is that for men with intermediate levels of education the chances of finding a (similar) new job on a polarized labour market (e.g. Goos et al., 2014) are smaller than for other groups. That would be in line with findings that suggest that employability moderates the effect of perceived job insecurity on mental health (Green, 2011). Negative effects of perceived job insecurity on mental health are found among men with permanent contracts only. These permanent contracts may have prompted an expectation of continuity of the employment relation, and the perceived job insecurity may be felt as breach of a psychological contract (e.g. De Cuyper & De Witte, 2007). Furthermore, negative effects of job insecurity increase with income. There is no other group in our study for which the detrimental mental health effect of job insecurity is larger than for men and women with a net monthly income of at least €3,000. This can be due to a cap in unemployment benefits ('maximum dagloon'), effectively lowering the replacement rate beyond this income level. It can also be due to insecurity about the possibility of finding a job with a similar income.

Finally, we found some evidence indicating non-linear effects. The most interesting findings here are that starting to perceive some likelihood of job loss after having been perfectly certain is most stressful and that certainty of job loss (100 per cent job insecure) may be better for mental health than highly uncertain (90 per cent job insecure). This could reflect that being certain of what is going to happen is less stressful than living with uncertainty, or it could be that the respondents held a temporary position and did not experience a shock when it ended, or respondents may be certain of the end of their current job as they have found a new one.

6.1.2 'No Manner of Hurt was Found Upon Him'. The Role of Religiousness in the Mental Health Effects of Job Insecurity

Theoretically the moderating role of religiousness in the mental health effect of job insecurity could go either way: buffer or burden. Religiousness could act as a buffer if it is a resource from which the individual can draw in times of adversity or if it makes job insecurity less stressful to those whose identities are defined less by the job they hold and more by their religiousness. On the other hand, religiousness could act as a burden if it places additional demands on the individual and his work, e.g. when individuals view their work as a sacred vocation or if they view adversity as a tribulation or punishment inflicted on them by their God. Empirically little is known about the role of religiousness in the mental health effect of job insecurity. This role is further investigated in chapter 3.

We find that religious employees in general, and Protestants among them in particular, despite being at risk due to a higher work ethic, are shielded from the adverse mental health effects of job insecurity. This effect is not driven by reverse causality of religiousness. Religiousness is only advantageous to men confronted with job insecurity, in particular Protestant men; women, in particular Catholic women, are adversely impacted. A religious upbringing is not

sufficient to be insulated from the negative mental health effects of job insecurity; the respondent himself has to be religious.

What brings about this buffering effect? Important, it appears, are personal beliefs about the existence of God and the existence of life after death. We find that belief beyond doubt in God's existence as well as belief in life after death both insulate from detrimental mental health effects from job insecurity. Unlike belief in God's existence, that shields only the religious, belief in life after death insulates those who consider themselves religious as well as those who do not consider themselves religious. The beliefs in God and in afterlife only appear to insulate workers who frequently attend religious gatherings. In a similar vein, frequent attendance of religious gatherings only insulates those workers who hold strong beliefs in God and in afterlife. The social network that religiousness is said to provide does not seem to be responsible for the buffering role of religiousness. Religious coping appears to be an effective coping style.

These results represent, to our knowledge, the first direct demonstration of the Probst and Strand (2010) proposition that highly spiritual employees experience fewer negative effects of job insecurity compared to less spiritual employees. We are not the first to report positive mental health and stress buffering effects of belief in God or in life after death (Bradshaw & Ellison, 2010; Ellison et al., 2009; Flannelly et al., 2006). Potential reasons that have been put forward are that belief in afterlife may help reappraise the job security stressor by helping to put it in a broader perspective. *Sub specie aeternitatis*, concerns about job security may be seen as ephemeral or ethereal. Furthermore, persons who hold such beliefs must have immaterial minds or souls, to whom perceptions of material problems pertaining to job loss are probably less ominous or weighty (Flannelly et al., 2006). Positive health effects from attendance of religious gatherings were also reported by VanderWeele et al. (2017). Ours is the first study to indicate that both spiritual beliefs and frequent attendance of religious gatherings are required in order to benefit from the buffering effect of religiousness.

Our results suggest that in future research it is prudent to distinguish clearly between religious affiliation and religious beliefs held (a point also made by Flannelly et al., 2006). There is a clear overlap between the two, but failing to control for personal beliefs might lead to misattribution of certain effects of religious beliefs to religious affiliation. As religious beliefs may vary in prevalence between religious groups, confounding religious affiliation and religious beliefs may also explain seemingly contradictory findings on the effect of religious affiliation, e.g. the contradictory findings of Schreurs et al. (2014) and chapter 3 of this dissertation.

6.1.3 Five under stress. The role of personality in the mental health effect of job insecurity

The Big5 traits appear to matter for stress regulation (Chida & Hamer, 2008; Schneider et al., 2012), but this is confirmed mainly in lab studies. Such studies generally consider short-term effects, whilst the effects of stress may last longer. Whether the Big5 traits also matter outside the lab, when dealing with real-life stressors, is not clear. The main contribution of this study is that it tests to what extent in real life and over the course of years the Big5 traits matter for the mental health effect of job insecurity. In other words: are some personalities more resilient to the demands of modern flexible labour markets than others? This study is to our knowledge the first

study of the moderating effects of the Big5 personality traits on the relationship between a real-life stressor and well-being in the field and in a longitudinal framework.

In line with the results of earlier studies our data indicate that perceived job insecurity has detrimental mental health effects, with an effect size in Australia more than twice the effect size in Germany and almost twice the effect size in the Netherlands. The differences in findings could potentially be explained by institutional differences, but it is also plausible that these differences are due to a combination of the wording and content of the item measuring job insecurity and the time gap between measurement of perceived job insecurity and mental health. In the Netherlands and Australia job insecurity is measured as the perceived likelihood of job loss in the next 12 months, whereas in Germany it is measured as the perceived likelihood of job loss in the next 24 months. In Australia the items of job insecurity and mental health are administered simultaneously, in the Netherlands perceived job insecurity is measured five months prior to mental health measurement, and in Germany perceived job insecurity is measured a full year prior to mental health measurement. It is likely that the effect of job insecurity on mental health is strongest shortly after job insecurity is being perceived and wears off with time. If true, then our figure may be a lower bound to the immediate effect, as the effect would already have partly worn off.

In Australian data we find that extraversion has a mitigating effect on the mental health deterioration following job insecurity, and that openness to experience as well as neuroticism have an exacerbating effect on the mental health deterioration following job insecurity. In Dutch and German data we find (almost) no evidence of a moderating effect of Big5 personality traits in the mental health effect of job insecurity; the smaller effect sizes and time lag between assessments may result in a lack of statistical power that prevents picking up a moderating effect of traits.

Our results are at odds with the results from lab studies suggesting that openness to experience, conscientiousness, and agreeableness are positively related to resilience because of stressor-related affect and coping effectiveness. They are in line, though, with studies that suggest that people who are more open to experience are less resilient because of their physiological stress response (Bibbey et al., 2013; Xin et al., 2017). They are also in line with studies indicating that extraverted people are more resilient due to stressor-related affect (Leger et al., 2006; Schneider et al., 2012; Xin et al., 2017), coping effectiveness (Fredrickson & Joiner, 2002) or physiological stress response (Oswald et al., 2006). Finally, our findings are consistent with studies that suggests that neurotic people are less resilient due to stressor-related affect (Leger et al., 2006; Schneider et al., 2012; Xin et al., 2017), coping effectiveness (Dunkley et al., 2014) or physiological stress response (Oswald et al., 2006; Xin et al., 2017).

Our results lend some external validity to the field investigating associations between the Big5 personality traits and the stress response, a field fraught with validity issues. Our results show that some but not all Big5 traits matter for effectively dealing with a real-life stressor such as job insecurity over the course of years, but that the influence even of these traits is not consistently discernable.

6.1.4 When 'can do' turns against you. Self-efficacy and the mental health effect of job insecurity

There is some ambiguity in the literature about the effect of self-efficacy on the stress response. A large amount of evidence indicates that self-efficacy diminishes the negative mental health effects of stressors, and but a few studies find no effect or even find the opposite: that self-efficacy increases the negative mental health effects of stressors. Studies on the subject often involve somewhat imprecise notions of stress, such as daily stress or the stress from ageing, and often are limited in measurement moments and number of respondents. This chapter aimed to investigate the role of self-efficacy in the mental health effect of job insecurity by investigating to what extent the mental health deterioration following job insecurity is moderated by baseline self-efficacy.

Our results indicate that higher baseline self-efficacy statistically significantly exacerbates the detrimental mental health effect of perceived job insecurity. This effect is only found for women; the gender difference is statistically significant. The exacerbating effect of baseline self-efficacy appears furthermore heterogeneous (albeit insignificantly so) across other groups: having completed higher education, being employed in the public sector, having a permanent contract, having a higher income as well as having a partner and having children, all tend to come with a stronger negative influence of self-efficacy in the mental health effect of job insecurity.

Self-efficacy is measured only twice for some and only once for most respondents, so we are unable to analyse whether self-efficacy has a mediating role in the detrimental mental health effect of job insecurity. We find few indications of instability in self-efficacy perceptions, yet are unable to monitor over the whole period to what extent self-efficacy changes as a result of job insecurity (or other factors).

Our results indicate that a strong baseline belief in one's ability to respond to and control environmental demands and challenges (Schwarzer & Jerusalem, 1995) is maladaptive in the unpredictable and uncontrollable event of perceived job insecurity. As helpful as self-efficacy may be to keep going when dealing with daily nuisance or learning to live with the inconveniences of gradually getting older (Holahan & Holahan, 1987), it appears less helpful when a clear discrepancy between perceived self-efficacy and reality is hard to deny. An intensification of efforts to self-deceive in order to uphold prior self-efficacy beliefs as well as the updating of self-efficacy beliefs in the light of new evidence are both a likely cause of distress. As long as a belief of control can be maintained, mental health is likely to benefit. Yet when this belief is seriously challenged by reality, higher self-efficacy seems to mean more suffering. The 'can do' mentality then turns against oneself.

6.2 General conclusions

Job insecurity seems to have, on average, a relatively modest effect on the mental health of employees in the Netherlands. The effect size found is below what would in most conditions qualify as a minimal important difference (see e.g. Badhiwala et al., 2018; Ogura et al., 2020; but see also Colangelo et al., 2009). A potential explanation for this effect size being lower than the

one that we found in Australian data could be institutional differences, but it is also plausible that the effect of job insecurity wears off with the time that elapses between assessment of job insecurity and assessment of mental health. It is conceivable that with a shorter time lag between both assessments a larger effect size would be found.

If, on the other hand, part of the effect is attributable to reverse causality, the causal effect of job insecurity on mental health must be smaller than the effect that was found. Such a reverse effect, an effect of mental health on perceived job insecurity, is not inconceivable, as perceived job insecurity appears malleable under interventions that affect the sense of control but otherwise do not change the objective likelihood of job loss (Koen & Parker, 2020; Koen & Van Bezouw, 2021). The sample composition may further contribute to an overstatement of the average effect, as employees on a temporary contract were underrepresented in the Dutch sample and they appear less distressed by job insecurity than employees on permanent contracts.

We found some indications that employees who consider themselves completely safe from job loss are prone to a larger mental health deterioration once they do start perceiving some job insecurity. Employees with permanent contracts show a larger mental health deterioration than employees with temporary contracts, and the largest mental health deterioration occurs when employees pass the threshold from 0 per cent perceived likelihood of job loss to more than 10 per cent perceived likelihood of job loss. We also found that the group that perceives 0 per cent likelihood of job loss is gradually getting smaller: while in 2018 unemployment had completely recovered from the global financial crisis, the percentage respondents answering 0 per cent perceived likelihood of job loss was still more than 40 per cent below the level in 2008. This might be an indication that job insecurity becomes normalized and that more people are aware that it can also happen to them. Such preparedness, potentially even accelerated by policy, could dampen the future mental health effect of job insecurity.

The modest average effect of job insecurity on mental health masks that some groups appear to have above average problems in dealing with job insecurity. These are men, in particular the ones who seem to have the most to lose and to whom the prospect of job loss is most unexpected. Women appear generally unaffected by job insecurity, unless they have a high income or have high self-efficacy. In the absence of indications that men are particularly afflicted due to their breadwinnership, explanations for this gender difference are more likely to be found in social norms of paid employment being stronger for men and men's perceptions of masculinity. If the social norm of paid employment were to become as strong for women, then gender differences in effect size may subside and women may become as vulnerable for the mental health effect of job insecurity as men. Women with a relatively high income seem as vulnerable as men with a similar income, as are women who strongly believe in their ability to respond to and control environmental demands and challenges.

Religiousness, in particular a strong belief in God or a strong belief in life after death, appears to protect employees against the detrimental mental health effect of job insecurity. Belief in afterlife may help reappraise the job security stressor by helping to put it in a broader perspective. If such convictions enabling self-transcendence were to be on the retreat, this would create additional vulnerability for a mental health effect of job insecurity. Our findings, which rule out many other facets of religiousness as explanations, furthermore underline the importance of research considering the multifaceted nature of religiousness.

Some of the Big5 personality traits appear to affect how people deal with the distress of job insecurity. In one sample, openness to experience and neuroticism appear to exacerbate the mental health effect of job insecurity, and extraversion appears to attenuate the mental health effect of job insecurity. These results confirm findings from lab studies into the physiological stress response. In two other samples hardly any moderating effect of the Big5 traits is found, so the moderating role of the Big5 traits seems limited.

Previous evidence shows that self-efficacy, with few exceptions, is beneficial in all kinds of challenging circumstances. A striking finding presented in this dissertation is that self-efficacy actually appears to be a risk factor when confronted with job insecurity. In particular women seem to suffer a larger mental health deterioration from job insecurity with higher baseline self-efficacy.

6.3 Practical implications

The findings of this dissertation have several practical implications that can guide policy makers. As perceived job insecurity appears to deteriorate mental health, policies to reduce such perceptions are useful. Except maybe for the group that perceives zero job insecurity. We found that the group that was bereft of the notion of zero job insecurity was strongly affected by their loss of security. They may have been oblivious to the lurking dangers of employment dynamics and therefore taken off-guard. This might be preempted by creating general awareness that no one, not even an employee with a permanent contract and higher education, is perfectly immune from the risk of job insecurity.

Except for those who perceive zero job insecurity, workers systematically overestimate their perceived likelihood of job loss. Openness and transparency about job prospects by organizations helps bring down perceptions of job insecurity to more realistic levels (Schweiger & DeNisi, 1991). Proactive career behaviour lowers perceptions of job insecurity for workers with temporary contracts (Koen & Parker, 2020) and can be promoted (for interventions see e.g. Glaub et al., 2014 and Strauss & Parker, 2018). A requirement for such proactive career behaviour appears to be income adequacy (Koen & Van Bezouw, 2021); as Bourdieu (1998) noted, precarity renders rational anticipation impossible. So in order to promote proactive behaviours, income adequacy concerns should be met first.

We found indications that those who are certain of job loss might be better off than those who are highly uncertain. Ongoing uncertainty about when the job will end makes planning for the future more difficult (De Witte, 2005). Giving certainty about imminent job loss may be less harmful than giving hope about continuation.

Not only perceptions of job insecurity should be targeted. The detrimental mental health effect of job insecurity also calls for a reconsideration of employment protection legislation. The Dutch labour market is still a dual labour market with on the one hand strongly protected workers on permanent contracts and on the other hand workers with few rights and few prospects of things getting better, as employer investments in their human capital are rare and transitions to jobs with more security are below OECD average (Dolado, 2017). Steps should be taken to bridge this gap. Earlier attempts, such as the Work and Security Act ('Wet Werk en Zekerheid') that was

intended to make concatenation of temporary contracts less feasible, appear not very successful at this (Josten et al., 2020). A more effective route may be to make permanent contracts, that currently bring above EU average obligations with them (Vollebregt, 2021), less unattractive to employers. Furthermore, although the public sector generally sets a positive example by providing more job security than the private sectors, a large subsector such as health and welfare has a level of job insecurity no different from the national average across all sectors. It is small comfort that women, who are the large majority of workers in this subsector, are well able to deal with job insecurity.

People experience less mental health deterioration from job insecurity if they perceive better employability (Green, 2011). The likelihood of being able to find a good job after this one has ended depends on there being sufficient jobs available both on the national and on the regional level and on the match between the candidate's skills and knowledge and the job requirements. Full employment should remain a main target of economic policy. Investing in personal skills and knowledge is still largely dependent on the employer's willingness to finance and facilitate this. As a result, many already vulnerable groups, e.g. those with temporary contracts, part-time workers, those with lower education, older workers, are underrepresented (Cabus, 2019; Fleischmann & Koster, 2017; Visser et al., 2018) as the costs of training is an impediment to participate in lifelong learning. Lower costs of training and/or a larger financial contribution would help. The recent abolition of the tax deductibility of study expenses seems a step in the wrong direction.

It seems likely that the distress from job insecurity is larger with a lower replacement rate and with a shorter duration of unemployment insurance benefits. The replacement rate has remained quite stable in the Netherlands over the last few decades, but the duration of unemployment insurance benefits has been severely restricted. The idea behind this was that reducing the entitlement period would increase the job finding rate, and that seems to work (De Groot & Van der Klaauw, 2019). The disadvantage is that the unemployed who do not manage to find a job during the shortened entitlement period are relegated to social assistance, own funds, or a partner's income. The threat of the latter is hardly reassuring when facing job insecurity, especially if there are doubts about one's employability. These costs seem largely neglected in decisions about unemployment insurance benefit duration.

Finally, employers and employee representatives (e.g. trade unions) would do well to pay attention to mental health in the workplace, especially when it is likely that the perception of job loss looms. Certain groups are identified as appearing more vulnerable than others. They could be monitored more closely. Next to providing the material conditions to allow them to proactively go forward, certain interventions might be considered in order to develop self-awareness, self-regulation, and self-transcendence.

6.4 Limitations and further research

All our analyses are based on large, representative, panel data sets. These data sets contain many variables, but perceived employability is not systematically administered in the Dutch and German

data sets. This characteristic not only moderates the mental health effect of job insecurity (Green, 2011), but is also an important policy target to smooth labour market dynamics. Analyses and policy evaluations would benefit from panel database administrators starting to administer perceived employability.

Only the moderating effects of gender and self-efficacy turned out to be consistently statistically significant. All other differences between groups that we found are differences in nominal significance, which may produce type I errors greater than 5 per cent (Bland & Altman, 2015). Furthermore, some empirical chapters are based on data for one country only. For chapter 3, focusing on the role of religiousness, the limitation of one country is likely material, as the Dutch subsample is a unique blend of Protestants and Catholics who may have a different way of experiencing their religion or religious beliefs than Protestants and Catholics elsewhere. So whether these results generalize to other countries is not clear. Further research is required into the advantages emanating from religiousness. In particular, research should aim at isolating the active component of religiousness and examine if and how this can be retained in countries and individuals where religiousness itself may be retreating.

Johnston et al. (2020) were (to my knowledge) the first and only to establish a causal relationship between job insecurity and mental health, in the Australian mining sector. We were unable to disentangle the causality and potential reverse causality between perceived job insecurity and mental health. As a result, our results cannot be interpreted as causal effects of job insecurity. If part of the effect that we found is attributable to reverse causality, the causal effect of job insecurity on mental health is likely to be smaller than the effect found in the fixed effects model. Further research establishing the size of the causal relationship between job insecurity and mental health is needed.

Job insecurity seems to have, on average, a relatively modest effect on the mental health of employees in the Netherlands. We found indications that the mental health effect of job insecurity may wear off with time. This could be partly due to the perception of job insecurity dissipating as people get new jobs or otherwise more job security. Yet there is also a large group of people for whom job insecurity is not a passing phenomenon, but something they experience for longer. The mental health consequences of such prolonged exposure are not well understood. More research is necessary in the mental health effects of cumulative exposure to perceived job insecurity.

Finally, we have been able to establish that high initial self-efficacy predicts a stronger mental health deterioration following job insecurity, but we have been unable to establish the exact role of self-efficacy in this mental health deterioration. Further research should investigate to what extent self-efficacy changes as a result of job insecurity and how such changes are related to changes in mental health (i.e. is self-efficacy a moderator or mediator in the relationship between job insecurity and mental health). Further research is also recommended into the particular circumstances wherein self-efficacy is helpful or detrimental to mental health. There is much research indicating that self-efficacy is helpful for mental health when confronted with distress, yet our research provided a clear example of self-efficacy being detrimental to mental health. More clarity is desirable about the conditions wherein self-efficacy is either helpful or harmful.

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Nederlandse samenvatting (Summary in Dutch)

Samenvatting van de onderzoeksresultaten. Dit proefschrift gaat uit van de idee dat baanonzekerheid een vermoedelijke stressfactor is en daarmee schadelijk kan zijn voor het welzijn. In het bijzonder kan de zorg die voortvloeit uit het gewaarworden van de kans op baanverlies nadelig zijn voor de mentale gezondheid. Hoewel eerder empirisch onderzoek inzicht gaf in het verband tussen baanonzekerheid en mentale gezondheid, bleven veel vragen onbeantwoord. Daarbij gaat het niet alleen om de mate waarin baanonzekerheid een mentalegezondheidseffect heeft als wordt gecontroleerd voor (niet-geobserveerde) individuele kenmerken, maar ook in hoeverre er sprake is van effectheterogeniteit. Dit proefschrift richt zich daarom op het mentalegezondheidseffect van baanonzekerheid waarbij wordt gecontroleerd voor individuele kenmerken, evenals op het modererende effect van verschillende demografische, sociologische en psychologische variabelen. Meer specifiek onderzoekt het, naast een hoofdeffect, de rol van geslacht, leeftijd, gezinssituatie, opleiding, inkomen, type arbeidsovereenkomst, religiositeit, persoonlijkheid en zelfeffectiviteit. De belangrijkste bevindingen van de vier empirische hoofdstukken van dit proefschrift worden hieronder uiteengezet.

Wie hoog klimt kan laag vallen. Omgaan met baanonzekerheid in Nederland. De associatie tussen baanonzekerheid en mentale gezondheid is uitgebreid onderzocht in de epidemiologische en psychologische literatuur (zie bijv. Llosa et al., 2018; Sverke et al., 2002). De meeste studies gaan echter niet in op het endogeniteitsprobleem. Uitzonderingen zijn Green (2011) en Reichert en Tauchmann (2017), die controleren voor tijdinvariante niet-geobserveerde kenmerken met behulp van een *fixed effects*-schatter. Hoofdstuk 2 volgt een vergelijkbare strategie gebruikmakend van gegevens uit Nederland voor 2008-2018 en geeft verder een uitgebreide analyse van effectheterogeniteit.

De resultaten van dit hoofdstuk duiden op een vrij klein gemiddeld effect van baanonzekerheid op de mentale gezondheid, min of meer gelijk aan de impact van het overlijden van een ouder op een volwassene. Het gemiddelde nadelige effect van een toename van baanonzekerheid van 0 naar 100 procent is ongeveer 2 punten op een mentalegezondheidsschaal van 0 tot 100. Ter vergelijking: het overlijden van een ouder vermindert de mentale gezondheid met 1,1 punt, terwijl te horen krijgen dat men kanker heeft de mentale gezondheid vermindert met 7,2 punten en scheiding van een partner met 8,8 punten. Deze resultaten zijn gebaseerd op eigen berekeningen op dezelfde dataset en zijn dus goed vergelijkbaar. De effectgrootte is robuust voor verschillende operationalisaties van baanonzekerheid. Het is iets groter dan het effect gevonden door Reichert en Tauchmann (2017) voor Duitsland, en kleiner dan het effect gevonden door Green (2011) voor Australië. Als een deel van het effect toe te schrijven is aan omgekeerde causaliteit, moet het gevonden effect in de *fixed effects*-modellen een bovengrens van het causale effect zijn.

Het gemiddelde effect van baanonzekerheid op de mentale gezondheid is misschien vrij klein, maar sommige groepen hebben duidelijk meer moeite dan andere in het omgaan met baanonzekerheid. Voor mannen wordt een significant nadelig effect van baanonzekerheid op de mentale gezondheid gevonden, voor vrouwen niet. Dit is in lijn met de bevindingen voor Australië (Green, 2011). Mogelijk is de sociale norm van betaald werk voor mannen sterker (bijv. Clark, 2003). Er zijn geen aanwijzingen in onze resultaten dat mannen vooral worden getroffen omdat zij kostwinner zouden zijn. Integendeel, het blijkt dat mannen wier partner een aanzienlijk deel van het gezinsinkomen voor hun rekening neemt meer te lijden hebben van baanonzekerheid dan mannen die kostwinner zijn. Mogelijk hebben mannen meer angst voor afhankelijk worden van het inkomen

van de partner dan voor het niet kunnen onderhouden van het gezin. Daarnaast worden negatieve effecten van baanonzekerheid op de mentale gezondheid vooral gevonden bij mannen met een middelbaar opleidingsniveau en in mindere mate bij mannen met een hoger opleidingsniveau. Een mogelijke verklaring is dat voor mannen met een middelbaar opleidingsniveau de kansen op het vinden van een (vergelijkbare) nieuwe baan op een gepolariseerde arbeidsmarkt (o.a. Goos et al., 2014) kleiner zijn dan voor andere groepen. Dat zou in overeenstemming zijn met bevindingen die suggereren dat inzetbaarheid het effect van baanonzekerheid op de mentale gezondheid matigt (Green, 2011). Negatieve effecten van baanonzekerheid op de mentale gezondheid worden alleen gevonden bij mannen met een vast contract. Deze vaste contracten kunnen de verwachting hebben gewekt van continuïteit van de arbeidsrelatie, en de baanonzekerheid kan worden ervaren als een schending van een psychologisch contract (bijv. De Cuyper & De Witte, 2007). Bovendien nemen de negatieve effecten van baanonzekerheid toe met het inkomen. Er is geen andere groep in ons onderzoek waarvoor het nadelige mentalegezondheidseffect van baanonzekerheid groter is dan voor mannen en vrouwen met een netto maandinkomen van minimaal €3.000. Dit kan te wijten zijn aan een plafond in de werkloosheidsuitkeringen (het maximum dagloon), waardoor het uitkeringspercentage boven dit inkomensniveau in feite wordt verlaagd. Het kan ook komen door onzekerheid over de mogelijkheid om een nieuwe baan te vinden met een vergelijkbaar inkomen.

Tot slot vonden we enige aanwijzingen voor niet-lineaire effecten. De meest interessante bevindingen hier zijn dat het het meest stressvol is om enige kans op baanverlies waar te nemen na eerder volkomen zeker te zijn geweest over de baan, en dat zekerheid van baanverlies (100 procent baanonzekerheid) beter kan zijn voor de mentale gezondheid dan zeer onzeker over continuering (90 procent baanonzekerheid). Dit kan erop wijzen dat zekerheid hebben over wat er gaat gebeuren minder stressvol is dan leven met onzekerheid, of het kan zijn dat de respondenten een tijdelijke functie bekleden en het niet als een schok ervaren dat deze eindigt, of dat respondenten zeker zijn van het einde van hun huidige baan omdat ze een nieuwe hebben gevonden.

***"Zo werd er geen schade aan hem gevonden, dewijl hij in zijn God geloofd had".* De rol van religie in de mentalegezondheidseffecten van baanonzekerheid**. Theoretisch zou de modererende rol van religiositeit in het mentalegezondheidseffect van baanonzekerheid beide kanten op kunnen gaan: buffer of last. Religiositeit zou als buffer kunnen fungeren als het een bron is waaruit het individu kan putten in tijden van tegenspoed of als het baanonzekerheid minder stressvol maakt voor degenen wier identiteit minder wordt bepaald door de baan die ze hebben en meer door hun religiositeit. Aan de andere kant kan religiositeit als een last werken als het extra eisen stelt aan het individu en zijn werk, bijvoorbeeld wanneer individuen hun werk als een heilige roeping beschouwen of als ze tegenspoed beschouwen als een beproeving of straf die hun door hun God is opgelegd. Er is empirisch weinig bekend over de rol van religiositeit in het mentalegezondheidseffect van baanonzekerheid. Deze rol wordt verder onderzocht in hoofdstuk 3.

We stelden vast dat religieuze werknemers in het algemeen, en protestanten onder hen in het bijzonder, ondanks een verhoogd risico vanwege een hoger arbeidsethos, worden beschermd tegen de nadelige mentalegezondheidseffecten van baanonzekerheid. Dit effect wordt niet gedreven door omgekeerde causaliteit van religiositeit. Religiositeit is alleen voordelig voor mannen die geconfronteerd worden met baanonzekerheid, in het bijzonder protestantse mannen; vrouwen, in het bijzonder katholieke vrouwen, worden negatief beïnvloed. Een religieuze opvoeding is niet

voldoende om immuun te zijn voor de negatieve mentalegezondheidseffecten van baanonzekerheid; de respondent moet zelf religieus zijn.

Wat zorgt voor dit buffereffect? Belangrijk, zo lijkt het, zijn persoonlijke overtuigingen over het bestaan van God en het bestaan van een leven na de dood. We ontdekten dat een onwrikbaar geloof in het bestaan van God en geloof in een leven na de dood beide beschermen tegen nadelige gevolgen voor de mentale gezondheid als gevolg van baanonzekerheid. In tegenstelling tot geloof in het bestaan van God, dat alleen de religieuzen beschermt, immuniseert geloof in een leven na de dood zowel degenen die zichzelf als religieus beschouwen als degenen die zichzelf niet als religieus beschouwen. Het geloof in God en in het hiernamaals lijkt alleen werknemers te immuniseren die vaak religieuze bijeenkomsten bijwonen. Ook is het zo dat het frequente bijwonen van religieuze bijeenkomsten alleen die werknemers immuniseert die een sterk geloof in God en in het hiernamaals hebben. Het sociale netwerk dat religiositeit zou bieden lijkt niet verantwoordelijk te zijn voor het buffereffect van religiositeit. Religieuze coping lijkt een effectieve copingstijl te zijn.

Deze resultaten vormen, voor zover wij weten, de eerste directe demonstratie van de stelling van Probst en Strand (2010) dat zeer spirituele werknemers minder negatieve effecten van baanonzekerheid ervaren in vergelijking met minder spirituele werknemers. We zijn niet de eersten die positieve mentalegezondheids- en stressbufferende effecten van geloof in God en in leven na de dood rapporteren (Bradshaw & Ellison, 2010; Ellison et al., 2009; Flannelly et al., 2006). Mogelijke redenen die hiervoor naar voren zijn gebracht, zijn dat geloof in een hiernamaals kan helpen om het stressvolle karakter van baanonzekerheid te herijken door het in een breder perspectief te plaatsen. *Sub specie aeternitatis* kunnen zorgen over werkzekerheid als vergankelijk of etherisch worden beschouwd. Bovendien moeten personen met dergelijke overtuigingen een immateriële geest of ziel hebben, voor wie percepties van materiële problemen met betrekking tot baanverlies waarschijnlijk minder onheilspellend of zwaar zijn (Flannelly et al., 2006). Positieve gezondheidseffecten van het bijwonen van religieuze bijeenkomsten werden ook gemeld door VanderWeele et al. (2017). Onze studie is de eerste studie die aantoont dat zowel spirituele overtuigingen als het frequent bijwonen van religieuze bijeenkomsten nodig zijn om te profiteren van het buffereffect van religiositeit.

Onze resultaten suggereren dat het in toekomstig onderzoek verstandig is om een duidelijk onderscheid te maken tussen religieuze affiliatie en religieuze overtuigingen (een punt dat ook werd gemaakt door Flannelly et al., 2006). Er is een duidelijke overlap tussen de twee, maar het niet controleren voor persoonlijke overtuigingen kan leiden tot het abusievelijk toewijzen van bepaalde effecten van religieuze overtuigingen aan religieuze affiliatie. Aangezien religieuze overtuigingen kunnen variëren in prevalentie tussen religieuze groepen kan verwarring van religieuze overtuigingen met religieuze affiliatie ook schijnbaar tegenstrijdige bevindingen verklaren over het effect van religieuze affiliatie, zoals bijvoorbeeld de tegenstrijdige bevindingen van Schreurs et al. (2014) en hoofdstuk 3 van dit proefschrift.

De Vijf onder stress. De rol van persoonlijkheid in het mentalegezondheidseffect van baanonzekerheid. De Big5-persoonlijkheidstrekken lijken van belang voor stressregulatie (Chida & Hamer, 2008; Schneider et al., 2012), maar dit wordt alleen bevestigd in laboratoriumstudies. Dergelijke studies houden doorgaans rekening met kortetermijneffecten, terwijl de effecten van stress langer kunnen aanhouden. Of de Big5-trekken er ook buiten het lab toe doen, als het gaat om *real life* stressoren, is minder duidelijk. De belangrijkste bijdrage van dit onderzoek is dat het toetst in hoeverre in het echte leven en met de jaren de Big5-trekken van belang zijn voor het

mentalegezondheidseffect van baanonzekerheid. Met andere woorden: zijn sommige persoonlijkheden beter bestand tegen de eisen van moderne flexibele arbeidsmarkten dan andere? Deze studie is voor zover wij weten de eerste studie in het veld en in een longitudinaal kader naar de modererende effecten van de Big5-persoonlijkheidstrekken in de relatie tussen een duidelijke stressor en welzijn.

In lijn met de resultaten van eerdere studies wijzen onze resultaten uit dat baanonzekerheid nadelige gevolgen heeft voor de mentale gezondheid, met een effectgrootte in Australië die meer dan twee keer zo groot is als in Duitsland en bijna twee keer zo groot als in Nederland. De verschillen in bevindingen kunnen mogelijk worden verklaard door institutionele verschillen, maar het is ook aannemelijk dat deze verschillen te wijten zijn aan een combinatie van de bewoording en inhoud van het item dat baanonzekerheid meet en het tijdsverschil tussen het meten van baanonzekerheid en mentale gezondheid. In Nederland en Australië wordt baanonzekerheid gemeten als de eigen inschatting van de kans op baanverlies in de komende 12 maanden, terwijl baanonzekerheid in Duitsland wordt gemeten als de eigen inschatting van de kans op baanverlies in de komende 24 maanden. In Australië worden de items omtrent baanonzekerheid en mentale gezondheid gelijktijdig afgenomen, in Nederland wordt de baanonzekerheid vijf maanden voorafgaand aan de meting van de mentale gezondheid gemeten en in Duitsland wordt de baanonzekerheid een heel jaar voorafgaand aan de mentale gezondheid gemeten. Het is aannemelijk dat het effect van baanonzekerheid op de mentale gezondheid het sterkst is kort nadat baanonzekerheid bewust wordt en dat dit effect na verloop van tijd minder wordt. Als dit waar is, is ons cijfer voor Nederland mogelijk een ondergrens voor het onmiddellijke effect, omdat het effect dan al gedeeltelijk zou zijn uitgewerkt.

In Australische data vinden we dat extraversie een dempend effect heeft op de verslechtering van de mentale gezondheid na baanonzekerheid, en dat openheid voor ervaring en neuroticisme een versterkend effect hebben op de verslechtering van de mentale gezondheid na baanonzekerheid. In Nederlandse en Duitse data vinden we (vrijwel) geen bewijs voor een modererend effect van Big5-persoonlijkheidstrekken op het mentalegezondheidseffect van baanonzekerheid; de kleinere effectgroottes en het tijdsverloop tussen beoordelingen resulteren mogelijk in een gebrek aan statistische power die verhindert dat een modererend effect van persoonlijkheidstrekken wordt opgepikt.

Onze resultaten staan haaks op de resultaten van laboratoriumonderzoeken die suggereren dat openheid voor ervaring, zorgvuldigheid en vriendelijkheid positief gerelateerd zijn aan veerkracht vanwege stressgerelateerd affect en copingeffectiviteit. Ze sluiten echter aan bij onderzoeken die suggereren dat mensen die meer openstaan voor ervaringen minder veerkrachtig zijn vanwege hun fysiologische stressrespons (Bibbey et al., 2013; Xin et al., 2017). Ze zijn ook in overeenstemming met studies die aangeven dat extraverte mensen veerkrachtiger zijn vanwege stressgerelateerd affect (Leger et al., 2006; Schneider et al., 2012; Xin et al., 2017), copingeffectiviteit (Fredrickson & Joiner, 2002) of fysiologische stressrespons (Oswald et al., 2006). Tot slot zijn onze bevindingen consistent met onderzoeken die suggereren dat neurotische mensen minder veerkrachtig zijn vanwege stressgerelateerd affect (Leger et al., 2006; Schneider et al., 2012; Xin et al., 2017), copingeffectiviteit (Dunkley et al., 2006; Schneider et al., 2012; Xin et al., 2017) al., 2014) of fysiologische stressrespons (Oswald et al., 2006; Xin et al., 2017). Onze resultaten verlenen enige externe validiteit aan het onderzoeksterrein dat associaties onderzoekt tussen de Big5-persoonlijkheidstrekken en de stressrespons, een terrein vol validiteitsproblemen.

Onze resultaten laten zien dat sommige, maar niet alle Big5-persoonlijkheidstrekken van belang zijn voor het met de jaren effectief omgaan met een echte stressfactor zoals baanonzekerheid, maar dat zelfs de invloed van deze trekken niet consequent waarneembaar is.

Wanneer *'can do'* zich tegen je keert. Zelfeffectiviteit en het mentalegezondheidseffect van baanonzekerheid. Er is enige onduidelijkheid in de literatuur over het effect van zelfeffectiviteit op de stressrespons. Veel studies kennen als uitkomst dat zelfeffectiviteit de negatieve mentalegezondheidseffecten van stressoren vermindert, en slechts enkele studies vinden geen effect of vinden zelfs het tegenovergestelde: dat zelfeffectiviteit de negatieve mentalegezondheidseffecten van stressoren vergroot. Studies over het onderwerp bevatten vaak wat onnauwkeurige noties van stress, zoals dagelijkse stress of de stress van het ouder worden, en zijn vaak beperkt in meetmomenten en aantal respondenten. Dit hoofdstuk had tot doel de rol van zelfeffectiviteit in het mentalegezondheidseffect van baanonzekerheid te onderzoeken, door te onderzoeken in hoeverre de verslechtering van de mentale gezondheid na baanonzekerheid wordt gemodereerd door initiële zelfeffectiviteit.

Onze resultaten geven aan dat een hogere initiële zelfeffectiviteit statistisch significant het nadelige mentalegezondheidseffect van ervaren baanonzekerheid versterkt. Dit effect wordt alleen gevonden bij vrouwen; het geslachtsverschil is statistisch significant. Het versterkende effect van initiële zelfeffectiviteit blijkt verder heterogeen (zij het statistisch insignificant) tussen andere groepen: hoger onderwijs hebben afgerond, in de publieke sector werken, een vast contract hebben, een hoger inkomen hebben, een partner hebben en kinderen hebben, zijn allemaal factoren die de negatieve invloed van zelfeffectiviteit op het mentalegezondheidseffect van baanonzekerheid versterken.

Zelfeffectiviteit wordt slechts twee keer gemeten voor sommige en slechts één keer voor de meeste respondenten, dus we kunnen niet analyseren of zelfeffectiviteit een mediërende rol speelt in het nadelige mentalegezondheidseffect van baanonzekerheid. We vinden weinig aanwijzingen voor instabiliteit in de zelfeffectiviteit, maar zijn niet in staat om over de hele periode te monitoren in hoeverre de zelfeffectiviteit verandert als gevolg van baanonzekerheid (of andere factoren).

Onze resultaten duiden erop dat een sterk initieel geloof in het eigen vermogen om te reageren op omgevingseisen en -uitdagingen en deze te beheersen (Schwarzer & Jerusalem, 1995) nadelig is in de onvoorspelbare en onbeheersbare situatie van baanonzekerheid. Hoe nuttig zelfeffectiviteit ook mag zijn om door te gaan bij dagelijkse overlast of bij het leren leven met de ongemakken van het ouder worden (Holahan & Holahan, 1987), het lijkt minder nuttig als een duidelijke discrepantie tussen zelfeffectiviteit en de realiteit moeilijk valt te ontkennen. Zowel een intensivering van pogingen tot zelfmisleiding om bestaande overtuigingen over zelfeffectiviteit te kunnen handhaven, als het *updaten* van overtuigingen over zelfeffectiviteit in het licht van nieuw bewijs, zijn beide vermoedelijk een bron van ongemak. Zolang de overtuiging van controle kan worden gehandhaafd, zal de mentale gezondheid er waarschijnlijk baat bij hebben. Maar wanneer dit geloof ernstig wordt uitgedaagd door de realiteit, lijkt een hogere zelfeffectiviteit meer ongemak te betekenen. De 'can do'-mentaliteit keert zich dan tegen de persoon.

Algemene conclusies. Baanonzekerheid lijkt gemiddeld een relatief bescheiden effect te hebben op de mentale gezondheid van werknemers in Nederland. De gevonden effectgrootte is kleiner dan wat in de meeste omstandigheden als een minimaal belangrijk verschil zou worden aangemerkt (zie

bijv. Badhiwala et al., 2018; Ogura et al., 2020; maar zie ook Colangelo et al., 2009). Een mogelijke verklaring voor het feit dat deze effectgrootte kleiner is dan degene die we in Australische data vonden kunnen institutionele verschillen zijn, maar het is ook aannemelijk dat het effect van baanonzekerheid afneemt met de tijd die verstrijkt tussen meting van baanonzekerheid en meting van mentale gezondheid. Het is denkbaar dat met een kortere tijdspanne tussen beide metingen een grotere effectgrootte wordt gevonden.

Als daarentegen een deel van het effect toe te schrijven zou zijn aan omgekeerde causaliteit, dan moet het causale effect van baanonzekerheid op de mentale gezondheid kleiner zijn dan het gevonden effect. Een dergelijk omgekeerd effect, een effect van mentale gezondheid op baanonzekerheid, is niet ondenkbaar, aangezien baanonzekerheid kneedbaar lijkt onder interventies die het gevoel van controle beïnvloeden, maar overigens de objectieve kans op baanverlies niet veranderen (Koen & Parker, 2020; Koen & Van Bezouw, 2021). De samenstelling van de steekproef kan verder bijdragen aan een overschatting van het gemiddelde effect, aangezien werknemers met een tijdelijk contract ondervertegenwoordigd zijn in de Nederlandse steekproef en zij minder lijken te lijden onder baanonzekerheid dan werknemers met een vast contract.

We hebben enkele aanwijzingen gevonden dat werknemers die zichzelf volkomen veilig waanden voor baanverlies, vatbaarder zijn voor een achteruitgang van de mentale gezondheid zodra ze enige baanonzekerheid beginnen te ervaren. Werknemers met een vast contract vertonen een grotere achteruitgang van de mentale gezondheid dan werknemers met een tijdelijk contract, en de grootste achteruitgang van de mentale gezondheid treedt op wanneer werknemers de drempel overschrijden van 0 procent ingeschatte kans op baanverlies tot meer dan 10 procent ingeschatte kans op baanverlies. We ontdekten ook dat de groep die 0 procent kans op baanverlies inschat, geleidelijk kleiner wordt: terwijl de werkloosheid in 2018 volledig was hersteld van de wereldwijde financiële crisis, was het percentage respondenten dat 0 procent kans op baanverlies inschatte nog steeds meer dan 40 procent onder het niveau van 2008. Dit zou een aanwijzing kunnen zijn dat baanonzekerheid normaliseert en dat meer mensen zich ervan bewust zijn dat het hen ook kan overkomen. Een dergelijke paraatheid, mogelijk zelfs versneld door beleid, zou het toekomstige mentalegezondheidseffect van baanonzekerheid kunnen temperen.

Het bescheiden gemiddelde effect van baanonzekerheid op de mentale gezondheid maskeert dat sommige groepen bovengemiddelde problemen lijken te hebben bij het omgaan met baanonzekerheid. Dit zijn mannen, in het bijzonder degenen die het meest te verliezen lijken te hebben en voor wie het vooruitzicht van baanverlies het meest onverwacht is. Vrouwen lijken over het algemeen geen last te hebben van baanonzekerheid, tenzij ze een hoog inkomen hebben of een hoge mate van zelfeffectiviteit. Aangezien er geen aanwijzingen zijn dat mannen in het bijzonder worden getroffen door hun kostwinnerschap, is de kans groter dat verklaringen voor dit sekseverschil worden gevonden in de sociale normen van betaald werk, die sterker zijn voor mannen, en in de beelden van mannelijkheid. Als de sociale norm van betaald werk voor vrouwen even sterk zou worden, dan zouden de genderverschillen in effectgrootte kunnen afnemen en zouden vrouwen net zo kwetsbaar kunnen worden voor het mentalegezondheidseffect van baanonzekerheid als mannen. Vrouwen met een relatief hoog inkomen lijken net zo kwetsbaar als mannen met een vergelijkbaar inkomen, net als vrouwen die sterk geloven in hun vermogen om te reageren op de eisen en uitdagingen van de omgeving en deze te beheersen.

Religiositeit, in het bijzonder een sterk geloof in God of een sterk geloof in een leven na de dood, lijkt werknemers te beschermen tegen het nadelige mentalegezondheidseffect van

baanonzekerheid. Geloof in een hiernamaals kan helpen om het stressvolle karakter van baanonzekerheid te herijken door het in een breder perspectief te plaatsen. Als dergelijke overtuigingen die zelftranscendentie mogelijk maken op de terugtocht zouden zijn, zou dit extra kwetsbaarheid creëren voor het mentalegezondheidseffect van baanonzekerheid. Onze bevindingen, die sommige andere facetten van religiositeit als verklaring uitsluiten, onderstrepen bovendien het belang van onderzoek dat rekening houdt met de veelzijdige aard van religiositeit.

Sommige van de Big5-persoonlijkheidstrekken lijken van invloed te zijn op hoe mensen omgaan met de stress van baanonzekerheid. In één steekproef lijken openheid voor ervaring en neuroticisme het mentalegezondheidseffect van baanonzekerheid te versterken, en extraversie lijkt het mentalegezondheidseffect van baanonzekerheid te dempen. Deze resultaten bevestigen bevindingen uit laboratoriumonderzoeken naar de fysiologische stressrespons. In twee andere steekproeven wordt nauwelijks een modererend effect van de Big5-trekken gevonden, dus de modererende rol van de Big5-trekken lijkt beperkt.

Eerder bewijs toonde aan dat zelfeffectiviteit, op enkele uitzonderingen na, gunstig is in allerlei uitdagende omstandigheden. Een opvallende bevinding in dit proefschrift is dat zelfeffectiviteit een risicofactor blijkt te zijn wanneer men geconfronteerd wordt met baanonzekerheid. Vooral vrouwen met een hogere initiële zelfeffectiviteit lijken te lijden onder een grotere verslechtering van de mentale gezondheid door baanonzekerheid.

Praktische implicaties. De bevindingen van dit proefschrift hebben verscheidene praktische implicaties die beleidsmakers kunnen helpen. Aangezien baanonzekerheid de mentale gezondheid lijkt te verslechteren, is beleid om dergelijke percepties te verminderen nuttig. Behalve wellicht voor de groep die helemaal geen baanonzekerheid ervaart. We ontdekten dat de groep die aanvankelijk leefde in de waan van volledige baanzekerheid sterk werd getroffen door hun verlies van zekerheid. Ze waren zich misschien niet bewust van de loerende gevaren van de werkgelegenheidsdynamiek en werden daardoor overrompeld. Dit kan worden voorkomen door het algemene bewustzijn te creëren dat niemand, zelfs niet een werknemer met een vast contract en een hogere opleiding, volkomen immuun is voor het risico van baanonzekerheid.

Behalve degenen die geen enkele baanonzekerheid ervaren, overschatten werknemers systematisch hun kans op baanverlies. Openheid en transparantie over arbeidsvooruitzichten door organisaties helpen de waarneming van baanonzekerheid naar een meer realistisch niveau te brengen (Schweiger & DeNisi, 1991). Proactief loopbaangedrag verlaagt de baanonzekerheid voor werknemers met tijdelijke contracten (Koen & Parker, 2020) en kan worden bevorderd (voor interventies zie bijv. Glaub et al., 2014 en Strauss & Parker, 2018). Een vereiste voor dergelijk proactief loopbaangedrag blijkt toereikendheid van het inkomen te zijn (Koen & Van Bezouw, 2021); zoals Bourdieu (1998) opmerkte, maakt precariteit rationele anticipatie onmogelijk. Dus om proactief gedrag te bevorderen, moeten eerst eventuele zorgen over de toereikendheid van het inkomen worden weggenomen.

We hebben aanwijzingen gevonden dat degenen die zeker zijn van baanverlies misschien beter af zijn dan degenen die zeer baanonzeker zijn. Voortdurende onzekerheid over wanneer de baan eindigt maakt het plannen voor de toekomst moeilijker (De Witte, 2005). Zekerheid geven over dreigend baanverlies is wellicht minder schadelijk dan hoop geven op voortzetting.

Niet alleen de waarneming van baanonzekerheid moeten worden aangepakt. Het nadelige mentalegezondheidseffect van baanonzekerheid vraagt ook om een heroverweging van delen van

het arbeidsrecht. De Nederlandse arbeidsmarkt is nog steeds een duale arbeidsmarkt met enerzijds zeer goed beschermde werknemers met vaste contracten en anderzijds werknemers met weinig rechten en weinig vooruitzichten op verbetering, aangezien investeringen in hun menselijk kapitaal door werkgevers zeldzaam zijn en transities naar banen met meer zekerheid minder frequent dan het OESO-gemiddelde (Dolado, 2017). Er moeten maatregelen worden genomen om deze kloof te overbruggen. Eerdere pogingen, zoals de Wet Werk en Zekerheid, die bedoeld was om aaneenschakeling van tijdelijke contracten minder haalbaar te maken, blijken hierin niet erg succesvol (Josten et al., 2020). Een effectievere route kan zijn om vaste contracten, die momenteel meer dan elders in de EU verplichtingen met zich meebrengen (Vollebregt, 2021), minder onaantrekkelijk te maken voor werkgevers. Bovendien, hoewel de publieke sector over het algemeen een positief voorbeeld geeft door meer werkzekerheid te bieden dan de particuliere sector, heeft een grote subsector zoals gezondheid en welzijn een niveau van baanonzekerheid dat niet verschilt van het nationale gemiddelde in alle sectoren. Het is een schrale troost dat vrouwen, die de overgrote meerderheid van de werknemers in deze subsector vormen, goed kunnen omgaan met baanonzekerheid.

Mensen ervaren minder verslechtering van de mentale gezondheid door baanonzekerheid als ze een betere inzetbaarheid ervaren (Green, 2011). De kans op het vinden van een goede baan nadat de huidige is geëindigd hangt af van voldoende beschikbaarheid op zowel landelijk als regionaal niveau van banen en van de match tussen de vaardigheden en kennis van de kandidaat en de functie-eisen. Volledige werkgelegenheid moet een hoofddoel van het economisch beleid blijven. Investeren in persoonlijke vaardigheden en kennis is nog grotendeels afhankelijk van de bereidheid van de werkgever om dit te financieren en te faciliteren. Als gevolg hiervan zijn veel reeds kwetsbare groepen, bijvoorbeeld mensen met tijdelijke contracten, deeltijdwerkers, laagopgeleiden, oudere werknemers hierin ondervertegenwoordigd (Cabus, 2019; Fleischmann & Koster, 2017; Visser et al., 2018), omdat de kosten van opleiding een belemmering vormen voor levenslang leren. Lagere opleidingskosten en/of een grotere financiële bijdrage zou helpen. De recente afschaffing van de fiscale aftrekbaarheid van studiekosten lijkt een stap in de verkeerde richting.

Het lijkt waarschijnlijk dat het leed door baanonzekerheid groter is met een lagere vervangingsratio en met een kortere duur van werkloosheidsuitkeringen. De vervangingsratio is in Nederland de afgelopen decennia vrij stabiel gebleven, maar de duur van de WW-uitkeringen is sterk beperkt. Het idee hierachter was dat het verkorten van de aanspraakperiode de werkhervattingskans zou verhogen, en dat lijkt te werken (De Groot & Van der Klaauw, 2019). Een nadeel is dat werklozen die er in de verkorte aanspraakperiode niet in slagen een baan te vinden, verbannen worden naar de bijstand, het eigen vermogen of het partnerinkomen. De dreiging van dat laatste is weinig geruststellend bij baanonzekerheid, in het bijzonder als er twijfel bestaat over de eigen inzetbaarheid. Deze kosten lijken grotendeels veronachtzaamd bij beslissingen over de duur van de WW-uitkering.

Tot slot zouden werkgevers en werknemersvertegenwoordigers (bijvoorbeeld vakbonden) er goed aan doen aandacht te besteden aan mentale gezondheid op de werkplek, vooral wanneer het waarschijnlijk is dat de kans op baanverlies opdoemt. Bepaalde groepen lijken kwetsbaarder dan andere; ze zouden beter in de gaten kunnen worden gehouden. Naast het creëren van materiële omstandigheden die hen in staat stellen zelf proactief aan de slag te gaan, kunnen interventies worden overwogen om zelfbewustzijn, zelfregulering en zelftranscendentie te ontwikkelen.

Beperkingen en verder onderzoek. Al onze analyses zijn gebaseerd op grote, representatieve paneldatasets. Deze datasets bevatten veel variabelen, maar de eigen inschatting van inzetbaarheid wordt in de Nederlandse en Duitse datasets niet systematisch geregistreerd. Dit kenmerk matigt niet alleen het mentalegezondheidseffect van baanonzekerheid (Green, 2011), maar is ook een belangrijk beleidsdoel om de dynamiek op de arbeidsmarkt op te vangen. Analyses en beleidsevaluaties zouden er bij gebaat zijn als paneldatabasebeheerders de eigen inschatting van inzetbaarheid van werknemers gaan registreren.

Alleen de modererende effecten van geslacht en zelfeffectiviteit bleken consistent statistisch significant te zijn. Alle andere verschillen tussen groepen die we hebben gevonden zijn verschillen in nominale significantie, die type I-fouten van meer dan 5 procent kunnen opleveren (Bland & Altman, 2015). Bovendien zijn sommige empirische hoofdstukken gebaseerd op gegevens voor slechts één land. Voor hoofdstuk 3, dat zich richt op de rol van religiositeit, is de beperking van één land waarschijnlijk materieel, aangezien de Nederlandse steekproef een unieke mix is van protestanten en katholieken die hun religie of religieuze overtuigingen op een andere manier kunnen ervaren dan protestanten en katholieken elders. Dus of deze resultaten generaliseren naar andere landen is niet duidelijk. Nader onderzoek is nodig naar de voordelen van religiositeit. Onderzoek moet er in het bijzonder op gericht zijn de actieve component van religiositeit te isoleren en na te gaan of en hoe deze behouden kan blijven in landen en individuen waar religiositeit zelf aan het afnemen is.

Johnston et al. (2020) waren (voor zover wij weten) de eerste en enige die een causaal verband tussen baanonzekerheid en mentale gezondheid hebben vastgesteld in de Australische mijnbouwsector. Wij waren niet in staat om de causaliteit en mogelijke omgekeerde causaliteit tussen baanonzekerheid en mentale gezondheid te ontrafelen. Als gevolg hiervan kunnen onze resultaten niet worden geïnterpreteerd als causale effecten van baanonzekerheid. Als een deel van het gevonden effect toe te schrijven is aan omgekeerde causaliteit, dan is het causale effect van baanonzekerheid op de mentale gezondheid waarschijnlijk kleiner dan het effect gevonden in het *fixed effects*-model. Verder onderzoek naar de omvang van het oorzakelijk verband tussen baanonzekerheid en mentale gezondheid is nodig.

Baanonzekerheid lijkt gemiddeld een relatief bescheiden effect te hebben op de mentale gezondheid van werknemers in Nederland. We vonden aanwijzingen dat het mentalegezondheidseffect van baanonzekerheid met de tijd kan afnemen. Dit kan deels komen doordat baanonzekerheid verdwijnt naarmate mensen nieuwe banen krijgen of anderszins meer baanzekerheid krijgen. Toch is er ook een grote groep voor wie baanonzekerheid geen voorbijgaand fenomeen is, maar iets wat ze langer meemaken. De gevolgen voor de mentale gezondheid van een dergelijke langdurige blootstelling worden niet goed begrepen. Er is meer onderzoek nodig naar de effecten op de mentale gezondheid van cumulatieve blootstelling aan baanonzekerheid.

Tot slot hebben we kunnen vaststellen dat een hoge initiële zelfeffectiviteit een sterkere verslechtering van de mentale gezondheid voorspelt na baanonzekerheid, maar we zijn niet in staat geweest om de exacte rol van zelfeffectiviteit in deze verslechtering van de mentale gezondheid vast te stellen. Verder onderzoek zou moeten onderzoeken in hoeverre de zelfeffectiviteit verandert als gevolg van baanonzekerheid en hoe dergelijke veranderingen verband houden met veranderingen in de mentale gezondheid (bijvoorbeeld: is zelfeffectiviteit een moderator of mediator in de relatie tussen baanonzekerheid en mentale gezondheid). Verder onderzoek wordt ook aanbevolen naar de specifieke omstandigheden waarin zelfeffectiviteit nuttig of schadelijk is voor de mentale

gezondheid. Er is veel onderzoek dat aangeeft dat zelfeffectiviteit nuttig is voor de mentale gezondheid wanneer men wordt geconfronteerd met stress, maar ons onderzoek gaf een duidelijk voorbeeld waarin zelfeffectiviteit schadelijk is voor de mentale gezondheid. Meer duidelijkheid over de omstandigheden waarin zelfeffectiviteit nuttig of schadelijk is is wenselijk.

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So I am eternally grateful to José for that small push that set this in motion and for the *temps perdu* that ensued, to Janneke and Thomas for their confidence and subsequent patience, valuable comments, and perseverance, to my mum for that last pull, and to both my parents for instilling in me a love of studying and for their belief in me.

Da steh' ich nun, ich armer Tor,
Und bin so ~~klug~~ jobunsicher als wie zuvor!

Peter Douwe van der Meer
Woudsend, July 2022

Curriculum vitae

Peter Douwe van der Meer (1968) studied Economics in Rotterdam (Netherlands) and Aix-en-Provence (France), and Psychology in Amsterdam (Netherlands). He started working for Utrecht University in 1995; first in policy-making, then in education, later in research; all these years in flexible employment.

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